



## FASTER, CHEAPER AND EASIER SECURITY CHECKS AT AIRPORTS WITH NEW TECHNOLOGY



**New x-ray technology in a unique scanner and custom designed intelligent plastic trolleys will help airline passengers through security checks faster by scanning the carry-on hand luggage at once. DIS helps the company Exruptive with the product development.**

Together with the Technical University of Denmark (DTU) the company Exruptive has developed the system and the technology that will make security checks faster, less stressful and a lot easier. The system and the technology will be able to handle up to 600 passengers per hour at a line of security, where an average of 150 passengers per hour pass through today.

- Another significant factor is that annually approx. 3.5 billion airline passengers travel worldwide, and when the passengers reach the security check of the carry-on hand luggage the cost per airline passenger is approx. 45 DKK. The new system will reduce this cost to approx. 20 DKK per person so there is a great commercial potential here, explains Jakob Schmidt, CEO at Exruptive.

Exruptive has brought DIS into the project for the development of the conveyor belt and inlets for the scanners that will guide the custom designed trolleys through so that the entire hand luggage of the passenger can be x-rayed, thereby replacing the classic trays at the security check.

- DIS was chosen as our parent company previously has worked with DIS on other projects, and we also received recommendations on DIS from one of our

other collaborators on the project. It was therefore an easy choice to involve DIS in this project, says Jakob Schmidt.

DIS has contributed with mechanical competences from the development of the conveyor belt to the SolidWorks drawings of the final constructions. Furthermore, several animations were created to simulate the scanner's functions in how it manages the trolleys, lifts, rotates and pushes them in relation to the x-rays, and how it manages a specified number of trolleys within a certain time frame.

- We have had two DIS consultants working at our company and they were part of our team on a daily basis. It has worked out perfectly, especially because it has been a very complex project, and it just makes it easier to have the DIS consultants' knowledge and advice close by and available. It has been crucial to us that this set-up was an option, concludes Jakob Schmidt.

The system and the scanner are currently being tested by test persons at a test center, located at Vojens Airport. Exruptive expects that the technology and the system will receive international security approval in 2017 and be on the market shortly after.

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## END-OF-LINE TEST STAND UPGRADED SUCCESSFULLY

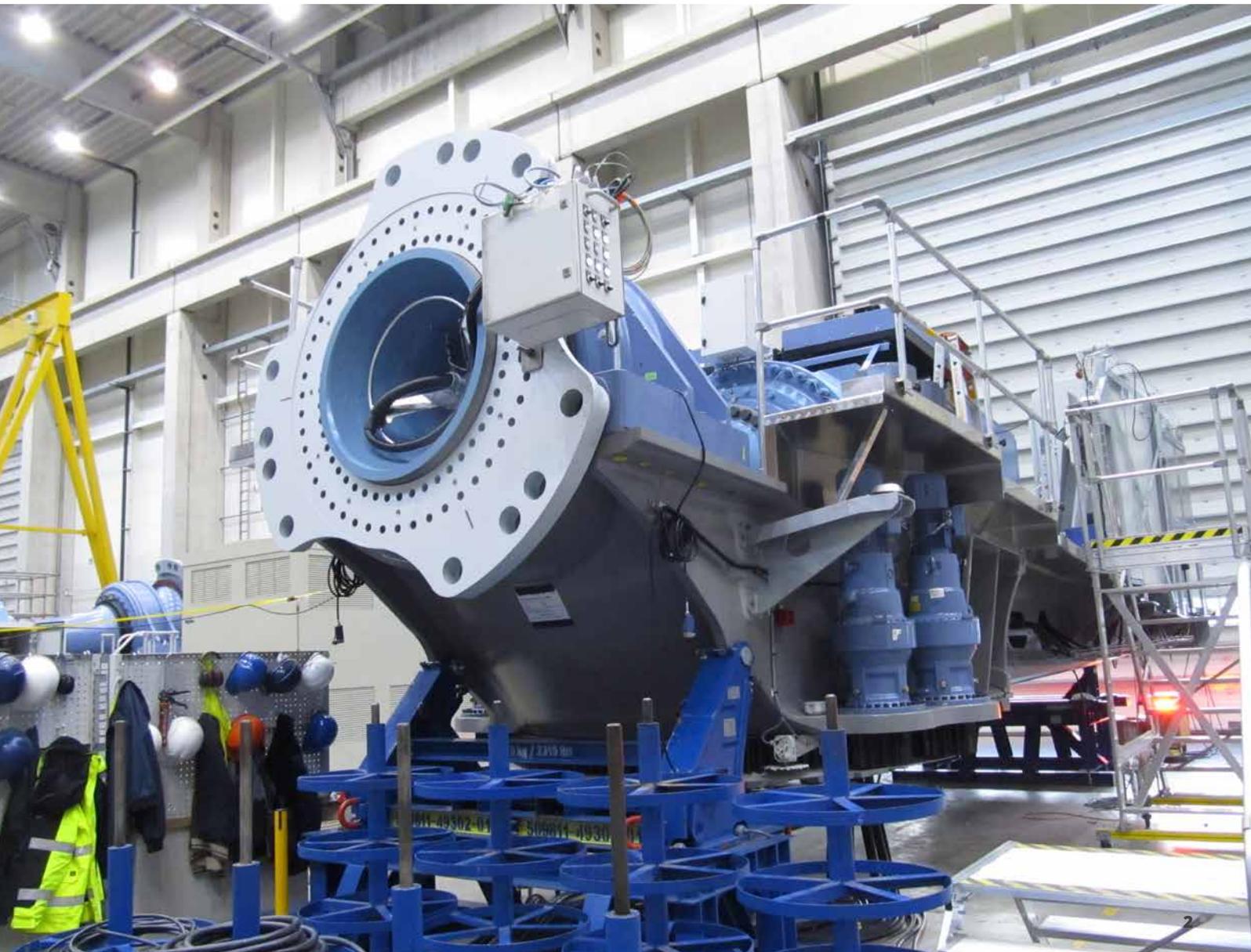
**CREADIS, DIS' German subsidiary, has upgraded the wind turbine manufacturer Senvion's existing series of test stands.**

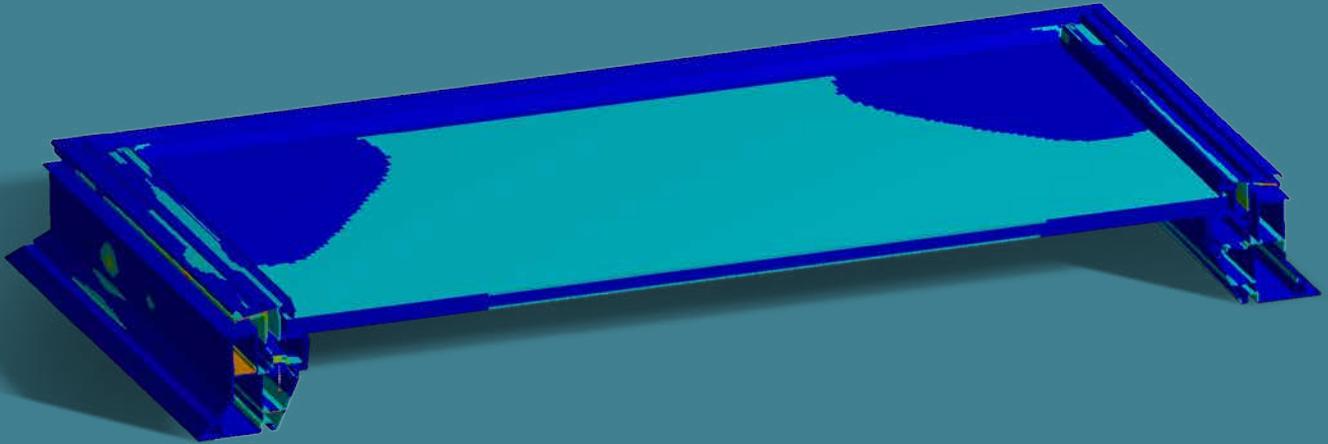
In order to meet future demands for network stability, the wind turbine manufacturer Senvion introduced the new generation 3.XM NES (Next Electrical System) in the market in 2015. The systems were designed for use in a 60Hz AC voltage network in the American and Canadian market. As a result, it became necessary to expand the nacelle's test facilities. With CREADIS' experience with high-voltage electronics in wind turbines and in setting up test stands, the expansion of the test stands in Bremerhafen and Trampe were completed last spring successfully.

Specifications, development and manufacture of inverters and simulation parts, as well as the commissioning of these, concept development and the development of a semi-automatic test stand were the main tasks performed by the CREADIS project engineers.

After defining the specifications CREADIS coordinated and monitored the production, delivery and installation of the units. Included in CREADIS' delivery was also the training of Senvion employees. Completing the delivery and implementing the new system while the company did ongoing serial production at both production sites provided an even more exciting challenge for the engineers.

The communication and cooperation between Senvion and CREADIS went very well, tasks were completed on schedule and the project delivered as planned. The result was five new converters, six identical simulators and a user-friendly and optimized test software delivered in the spring of 2016 and successfully put into operation.





## SIMULATION REDUCES DEVELOPMENT TIME

**In cooperation with VELUX, DIS has investigated the possibility of further developing VELUX' existing product development process by using simulation to a greater extent. By using simulation, development time can be reduced as well as reduce risks and costs before producing prototypes and ultimately the final product.**

The window manufacturer VELUX, who is the leading company within the development, production and sale of skylight windows, contacted DIS to get an overview of available simulation methods that could be relevant to further develop and whether other types of calculations could be interesting to implement in their existing product development process.

Among other things, simulations make it possible to estimate the structural and functional properties of a product based on design and material properties. It allows for parts of the product development process to be shortened as well as a more optimal design often can be achieved.

Simulation can be performed by using various software programs. A virtual 3D model is put through simulated situations; some examples are:

- Static Structural, which reveals structural strength and deformations
- Transient Structural/Explicit Dynamics, which reveals the structural strength from a time-dependent perspective such as drop or impact test
- Steady-state Thermal, which shows thermal conduction and temperature gradients in a structure in an equilibrium
- Computational Fluid Dynamics, which shows fluid and heat flows in liquids and gases through and around components

VELUX has received an overview from DIS on how they best utilize and further develop simulations in the product development process, and how other types of simulation and calculation methods can be implemented in this process. DIS has also advised VELUX on the level of competences needed to conduct the various types of simulation. Furthermore, DIS will support VELUX when it comes to the development of skills and competences of their employees, so they always have the right level of competence to utilize selected simulation methods optimally in their process.

Simulation is just another area where DIS is able to assist with virtual product development and it includes Computer Aided Design, Computer Aided Industrial Design, Computer Aided Manufacturing and Product Lifetime Management.

DIS uses simulation on many different projects and for many different customers in the industry. DIS uses simulation to optimize and quality assure a product and has extensive expertise and experience with simulations in general.

## MAYOR VISITS DIS IN AALBORG

### **Industry 4.0, growth and innovation were on the agenda when Aalborg's mayor and Business Aalborg representatives visited DIS' Northern Denmark subsidiary in Aalborg.**

In April, the mayor of Aalborg, Thomas Kastrup-Larsen as well as representatives from Business Aalborg stopped by for a visit at DIS where they held a meeting about innovation and growth in Aalborg.

- Aalborg is a growing city. Over the past 2 years the population in the municipality has increased with 5,000 citizens, which among other means that we need committed companies like DIS to create more jobs and student jobs, says Thomas Kastrup-Larsen, Mayor of Aalborg.

After half a year in Northern Denmark DIS has a positive outlook on the future.

- We sense optimism in the market as well as great interest from the companies in the North of Denmark and we are very pleased to be present near our customers here as well as we are pleased to be able to contribute with business and socially in Aalborg, says Michael Gadeberg, CEO and partner at DIS.

At the meeting the mayor also gained knowledge on how Industry 4.0 with new technology affects businesses more and more, and how DIS predicts the digital conversion will preoccupy many industrial companies in the coming years. DIS sees Aalborg as a city with many strong technical competences and wishes to attract these engineers and engage them in projects throughout the world – without them having to move away from the city.

- There is a shortage of engineers in Denmark and this visit confirms the strategy of opening a subsidiary in Northern Denmark, where our engineering and consultancy competences are needed. Aalborg is an exciting and growing city, and there is plenty to do out there, says Morten Nørgaard Morthorst, Head of Department at DIS in Aalborg.

*From left: Michael Gadeberg, CEO and partner at DIS, Morten Nørgaard Morthorst, Head of Department at DIS Aalborg and Thomas Kastrup-Larsen, Mayor of Aalborg.*





## DIS WINS PROJECT MANAGEMENT AWARD FROM SIEMENS WIND POWER FOR THE WORK ON THE DEVELOPMENT OF A NEW TYPE OF WIND TURBINE

**DIS consultant Anders Boysen received the internal “Best Performing Module” award from Siemens Wind Power Engineering during his work with the development of the new 7MW wind turbine, which replaces the former 6MW turbine.**

Every month, the project management group at Siemens Wind Power Engineering appoints one of their projects with the “Best Performing Module” award at their monthly Project Management Community meeting. The award is given to one of the many Siemens Wind Power projects and is highlighted for outstanding performance.

Late 2016 this honor was given to one of the projects DIS is part of. It was given to the electrical module project for Siemens new 7MW wind turbine, which is an upgrade of the former 6MW wind turbine. The biggest difference between the two wind turbines is the generator and the electrical system. The new 7MW turbine is also gearless and is based on the technology of the former successful 6MW turbine. The new wind turbine will be able to produce an additional megawatt compared to the 6MW turbine.

The development of the electrical system was exactly the module DIS consultant Anders Boysen was assigned to as a project manager. In the beginning, his main focus was to manage the conversion of mechanical drawings that were to be converted from Innovator to NX-CAD which is Siemens’ internal drawing program. Later on in the project, Anders became the overall project manager on the entire electrical system and he became responsible for 15 team members who were to perform consistently and reach the project goals.

The reason why Anders received this prestigious award was the great effort he put forward in order to complete the project on time as well as the flexibility he showed throughout. The project experienced several changes. Especially in the final phase of the project there were significant additions that meant that extra effort needed to be made in order to comply with the original delivery plan for the project.

- DIS consultants have the professionalism and routine required to take on this type of project. We have to be adaptive and flexible and are used to moving from one project in one organization to another project in another organization. This means, we have a unique experience with change and we know what it takes to facilitate projects, and it allows us to offer the extra effort expected of us consultants, says Anders Boysen, consultant and Senior Project Manager at DIS.

It is the first time an external consultant wins the “Best Performing Module” award at Siemens Wind Power Engineering. The development of the new wind turbine was completed in early 2017 and it is already being manufactured for the first customers. The first wind turbines are expected to be ready and generating power by 2018.

## NEW EMPLOYEES

Since March we have welcomed a number of new colleagues:



**Allan Nørgaard**  
Project Engineer,  
HW/SW, Aarhus



**Angelika Wielgus**  
Finance Assistant,  
Krakow



**Anna Hoite Meersohn**  
Project Manager,  
Aalborg



**Beata Wesolowska**  
Project Engineer,  
Mechanics, Krakow



**Bjarne Jensen**  
Project Engineer,  
Mechanics, Aalborg



**Dariusz Dabrowski**  
Project Engineer,  
Mechanics, Aarhus



**Emma Emel Altinay**  
Project Engineer,  
HW/SW, Aarhus



**Jacob Obelitz Sinding**  
Project Manager,  
Copenhagen



**Jakob Filso**  
Project Engineer,  
HW/SW, Aalborg



**Janus Gnanasegaram**  
Project Manager,  
Aarhus



**Jeppe Søndergaard Larsen**  
Project Engineer,  
HW/SW, Aalborg



**Kent Nielsen**  
Project Manager,  
Esbjerg



**Khac Toan Nguyen**  
Project Engineer,  
EI/Automation,  
Hamburg



**Kristian Lind Blak**  
Project Manager,  
Aarhus



**Marcin Janota**  
Project Engineer,  
Mechanics, Krakow



**Mateusz Szlag**  
Project Engineer,  
Mechanics, Krakow



**Mathijs Vanhauwaert**  
Project Engineer,  
Mechanics, Copenhagen



**Michal Jaskurzynski**  
Project Engineer,  
HW/SW, Krakow



**Pawel Daniec**  
Project Engineer,  
Mechanics, Krakow



**Peter Jenkner**  
Intern, Nürnberg



**Przemyslaw Halota**  
Project Engineer,  
EI/Automation, Krakow



**Sebastian Burmann**  
Intern, Nürnberg



**Sebastian Geyer**  
Project Engineer,  
HW/SW, Nürnberg



**Sebastian Haake**  
Project Engineer,  
Mechanics, Aarhus



**Søren Støttrup Kristensen**  
Project Engineer,  
Mechanics, Esbjerg



**Thomas Bodemann**  
Senior Engineer,  
HW/SW, Aarhus



**Wojciech Wojcik**  
Project Engineer,  
EI/Automation,  
Krakow



**Winnie Ørnsholt Jensen**  
Student Assistant,  
Aarhus