



3D Solutions



**Kamil Polikiewicz**  
Project Manager

Kamil is the 3D Scanning specialist, with an indepth knowledge in both IT and surveying solutions.



**Vidar Madsen**  
Lead Programmer

Highly skilled programmer with expertise in a number of disciplines such as visualization and networking.



**Harry Berg**  
Manager

Manager of Westcon 3D Solutions, has a background in cybernetics and information technology.

# OUR TEAM OF CREATIVE PROFESSIONALS **MAKES** ANYTHING POSSIBLE

Westcon 3D Solutions

**Westcon 3D Solutions is a department within the Westcon Group. We provide technical solutions for the offshore industry.**

Westcon 3D Solutions consist of a team of highly dedicated and specialized operators within their respective fields. The benefit of having a varied set of skills within a single team makes us able to provide our business partners with tailored solutions to suit their specific needs. The main fields we work with are programming, laserscanning (measuring), 3D technical modelling and animations. We mainly focus on selling tailored solutions for the oil and gas industry.





## 3D LASER SCANNING & MEASURING

The most efficient and accurate solution in order to gather data for measuring purposes. Instead of manually measuring constructions which is both time consuming and inaccurate, laserscanning does the job at the fraction of the time and much more precise. This allows us to approach problems in a different way by being a lot more flexible in construction, and having a much smaller margin for potential errors. Scanning allows you to re-create an environment digitally, giving you the possibility of making any measurement you want at any given time of the particular area or object you have scanned. It can be used in a lot of different areas and some of the more common usages is to combine it with dimensional control, making sure parts are built correctly, and will fit before sending them offshore. Re-creating GI drawings is also best done by using laserscanning in order to generate new and accurate drawings quickly and with millimeter precision.

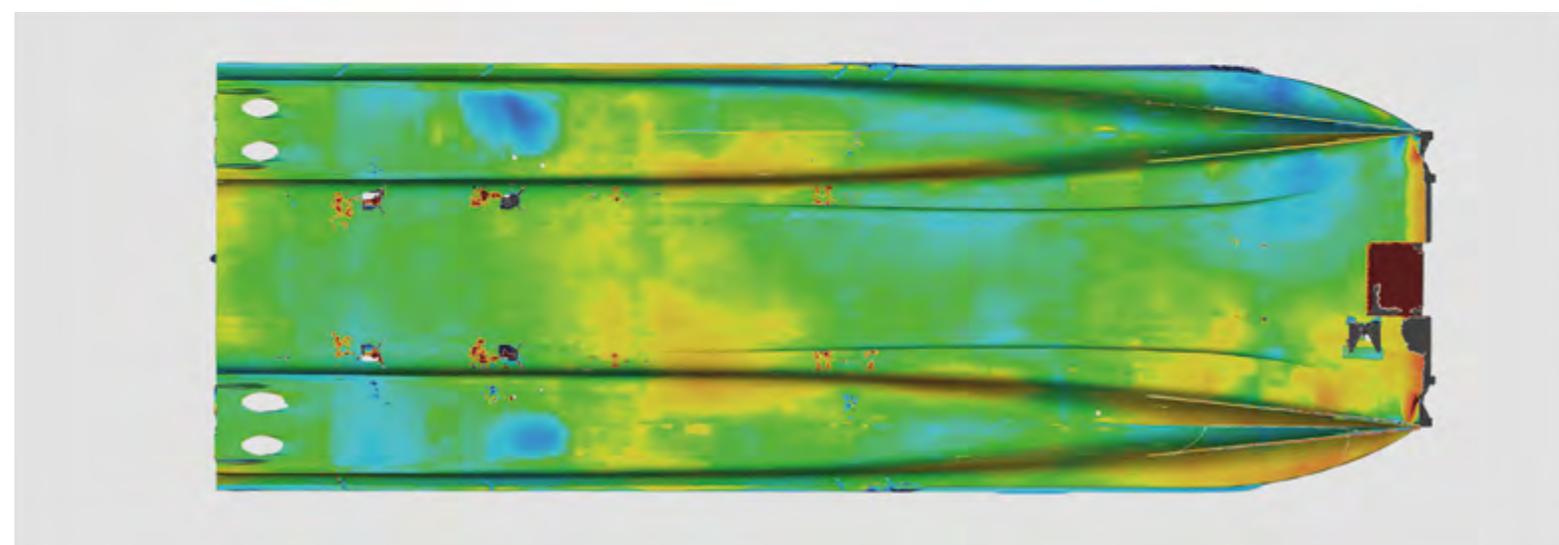
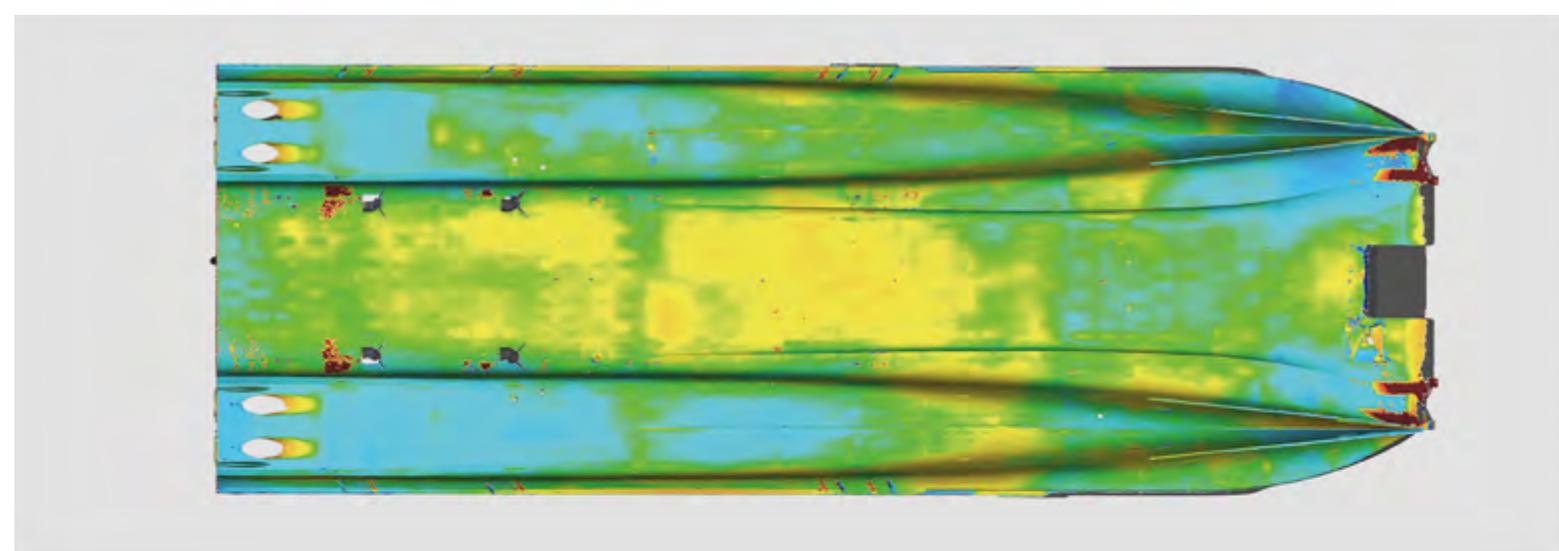
## DIFFERENT FIELDS OF USAGE

Scanning can also be quite useful for onshore industry, such as automation and infrastructure. We have developed a wide variety of solutions for completely different scenarios such as, car crash analysis in order to determine the speed and angle of impact. We have also been involved in generating a hull comparison analysis in order to figure out why two seemingly identical ship hull run at a completely different speed and fuel consumption. One of our more prestigious projects is the remodelling of the old heritage of Norway, the Nidaros Church for repair purposes.

## HULL SCANNING /01

A customer came to us with a problem, he had three identical passenger ships and one of the vessels were running at a vastly different speed and at a much higher fuel consumption rate than the other two vessels. We proceeded to scan the three ship hulls in order to compare them to each other and check if there was any considerable deviation between the three hulls. We generated 3D models of the hulls and ran them through our simulation software in order to generate a deviation map as you can see on the image to the right. The purpose of the deviation map is to visually see the difference on the hull structure.

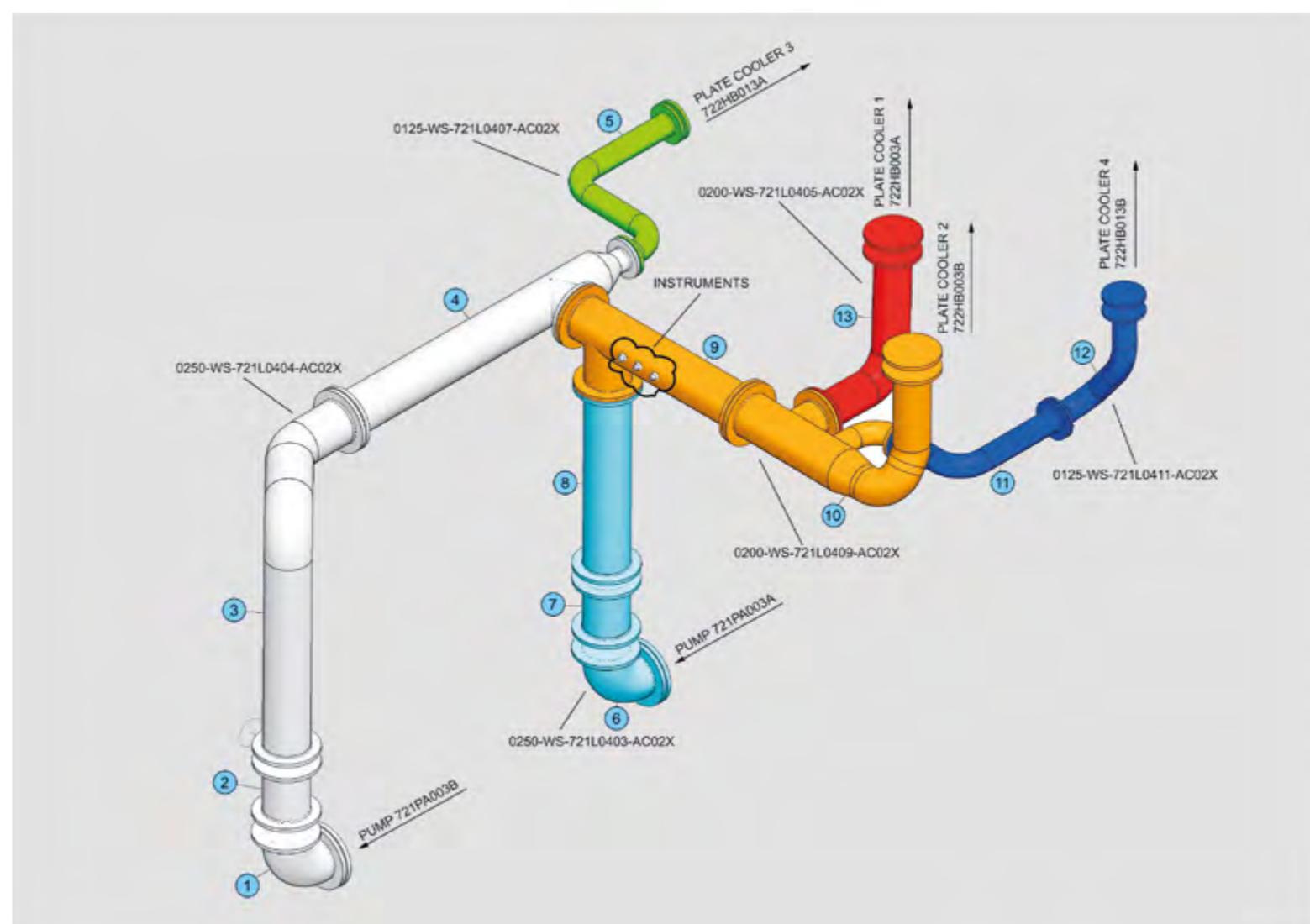
The 3D models of the hull were compared to an as built CAD model in order to have a reference point. Green values represent no deviation. The blue values represent a negative deviation and the red values represent a positive deviation. Based on these deviation maps we were able to conclude that everything was within normal tolerance which means that it was not the hull shape that caused the problem but propulsion related issues. These type of models can also be used for calculating a dynamic fluid simulation which helps provide details on how the water flows and look at possible obstructions causing an uneven flow.

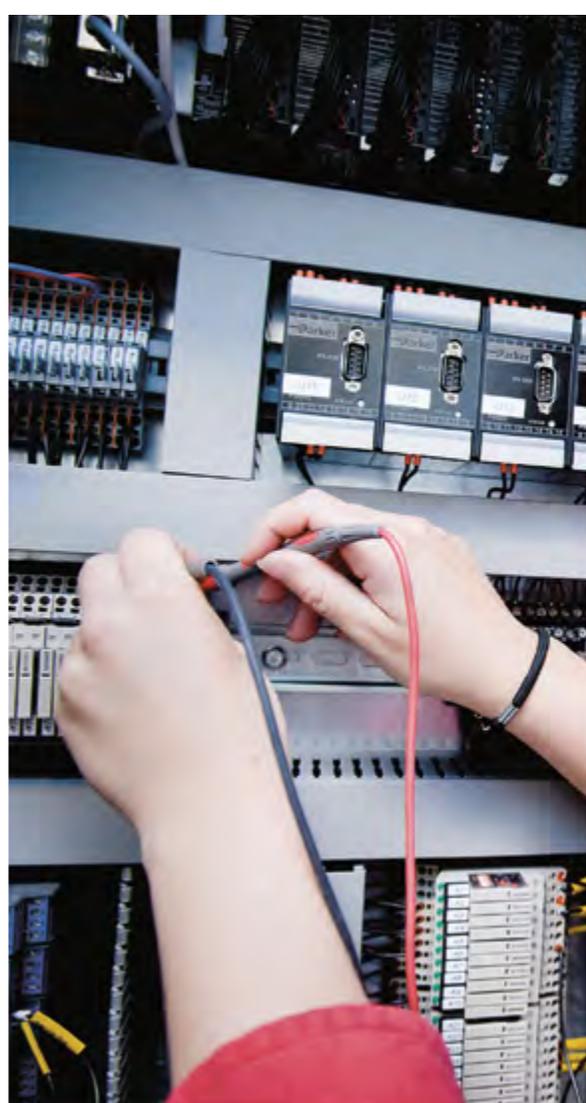
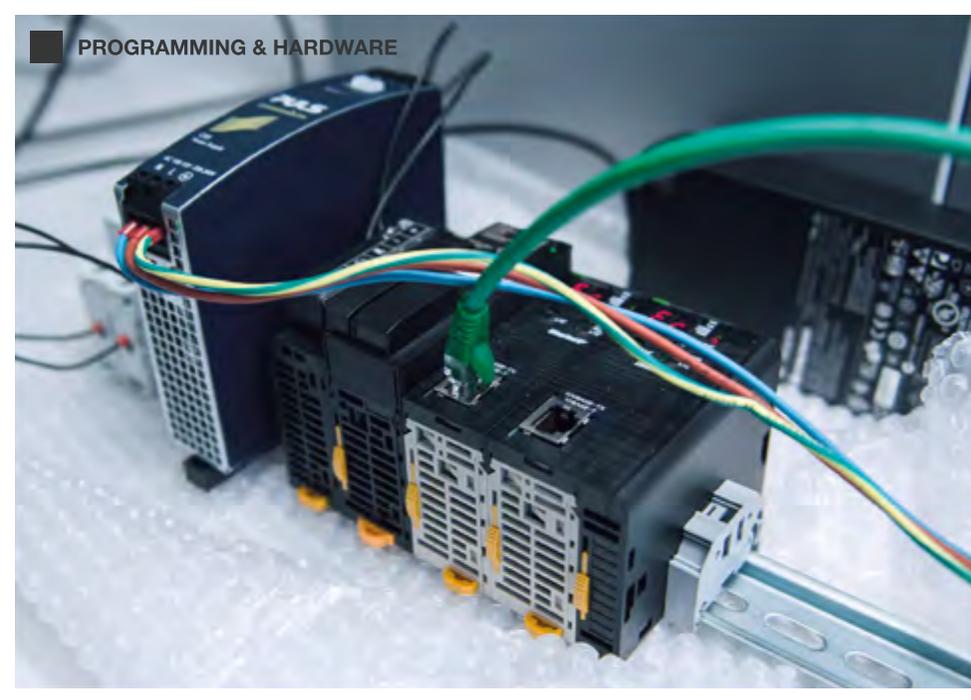


## DIMENSIONAL CONTROL /02

Ensuring that parts will fit before being transferred to their desired locations is very important. Time, efficiency and cost are all dependent upon being prepared for the potential challenges and errors that may occur during a production pipeline. This is where dimensional control serves as a failproof solution to the prefab and modification market. We have a wide range of tools that we use in order to perform dimensional control. Each tool has its specific area of usage, which allows us to give you the most accurate result possible. No scenario is the same and you need different tools for different situations.

One of the tools we use for dimensional control is laserscanning which works best with larger constructions. Using this technology we are able to capture large areas with millimeter precision very fast. Total Station has its strength in capturing singular parts more accurately, especially with a lot of bends and sharp curvatures. While our metronor measuring unit has been built for the specific purpose of doing dimensional control, and it is especially useful for measuring pipes and spools. Using these different technologies allows us to capture and gather data fast, in order to give you the information you need on time.





## PROGRAMMING & HARDWARE

Tailored solutions are essential in order to achieve optimal performance for particular tasks. We consider ourselves as a full end provider, delivering everything from A to Z in a production pipeline. Among the solutions we have developed is a camera tracking system for gangway stabilization for moving crew between vessels. Our development process covered everything from finding the most suited equipment, programming and customization, to Hardware-In-Loop testing in a simulated environment and actual field testing.

## OPTIMIZING YOUR WORKFLOW

Are you looking to optimize your existing systems? Westcon 3D is a part of the Westcon Group which consists of a variety of different professions, all specialized in their respective fields. We have everything from software designers to mechanical engineers. Our ability to take our knowledge and combine it into one product is what will ensure that you get the best solutions for your business. It is this wide range of knowledge that allows us to take unoptimized and rigid systems and convert them into an automated process.

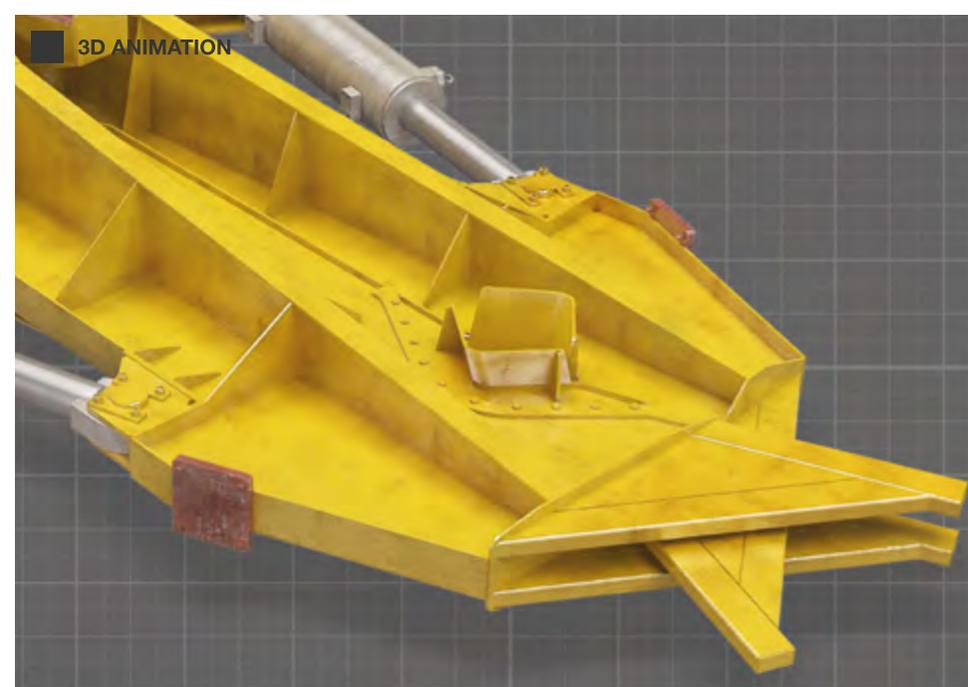
## GANGWAY AUTO LANDING /03

Vidar Madsen, our programming engineer is working on the software behind Marine Aluminiums new camera tracking and recognition system for their Gangway Auto Landing project. This particular project is a joint venture between two departments within the Westcon Group where 3D Solutions provides the code behind the software and Westcon Power & Automation is in charge of the hardware. The task at hand is to create an automated landing system for a gangway in order to have it transit smoothly between a vessel and an offshore installation, compensating for the wave movement.

The Auto Landing system is built upon a camera tracking system that will estimate the distance from the ground by using specified targets in order to automatically navigate the bridge slowly and safely down on the landing platform. One of the major benefits of the auto landing system is that it compensates for the wave motions of the ocean. Which makes it easier for the technician to ensure a safe landing. Once landed, the platform will automatically lock itself to the platform. However, if the sea becomes too rough the platform will also disengage itself automatically.

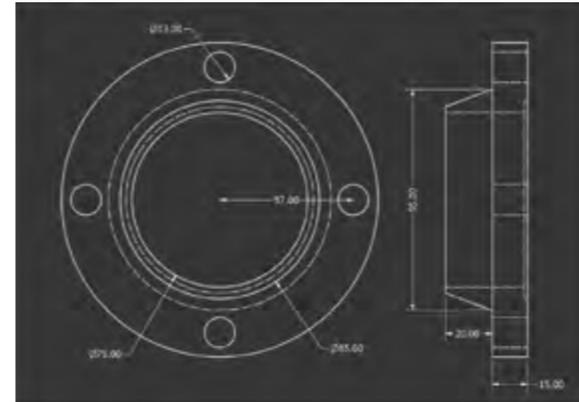


3D ANIMATION



## 3D ANIMATION & VISUALIZATION

Do you have a process you need to visualize? We specialize in creating realistic animations for the onshore and offshore industry. The benefits of having an animation created in the right scale and size is that it can be used in many different ways. You can run a clash control, to make sure that all the parts that are going to be installed whether it be onshore or offshore will fit. There is also a possibility of creating an operation plan, rather than having a ton of paper to go through, the employees can just look at the animation to see what needs to be done.



## ADVANTAGE OF USING 3D RENDERING

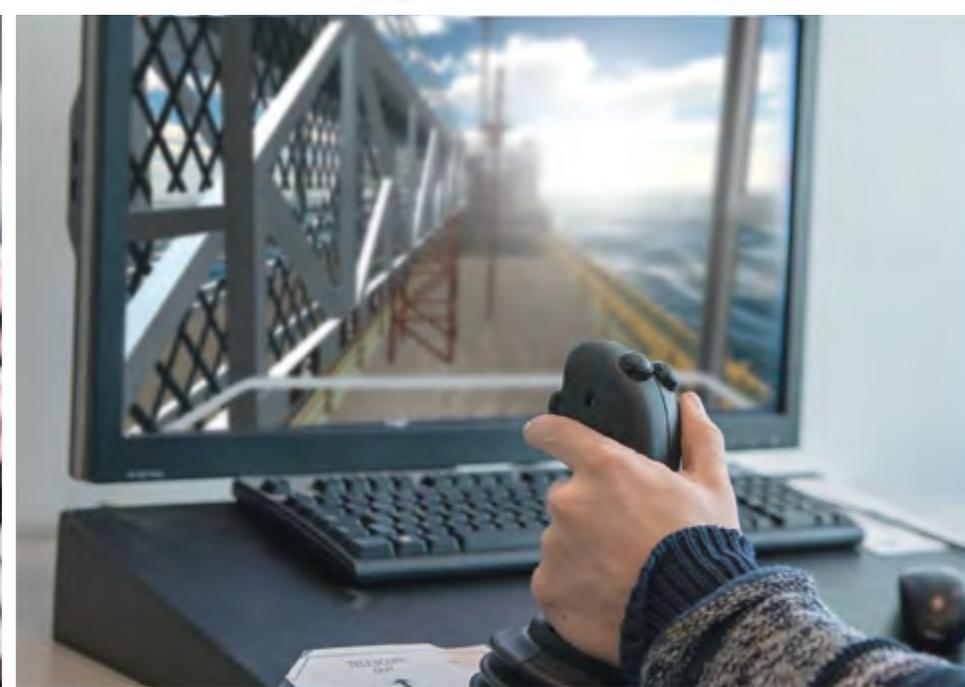
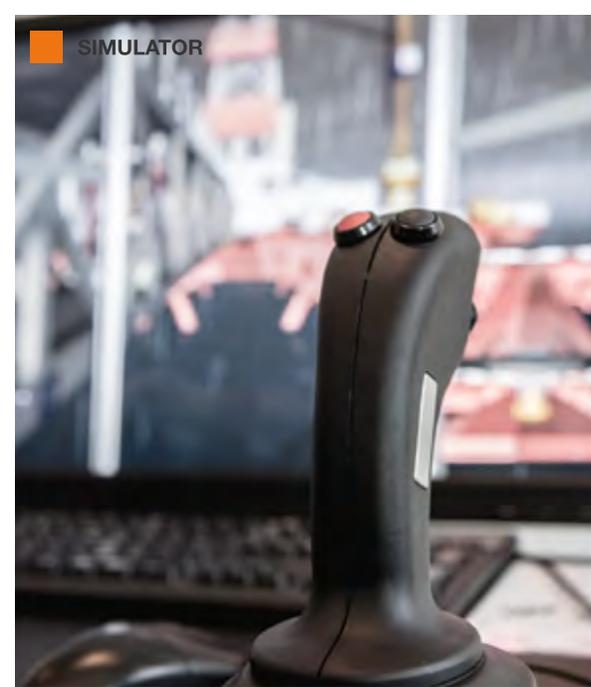
Normally when working with Inventor and CAD drawings you either get a 2D or a rough 3D sketch from the software. We decided to take this one step further and generate realistic imagery from the CAD/Inventor files. There are two reasons we decided to experiment with this method. The first is simply to create a worksheet that is easier for the production team to work after. The second reason is to use it in marketing, being able to show off your product before ever mounting a single bolt.

### 3D Animations /04

We have had the pleasure of working with many challenging and exiting projects over the course of several years. For instance, creating a clash control for an operation analysis. The task given to us was to run some equipment through the offshore installation and check for potential clashes. A typical clash check may be to see if the floor can sustain the weight of the equipment, or if there is enough space for the equipment to get through. What gives us an edge when it comes to these type of animations is our ability to combine scanning with the modelling process, giving us extremely accurate data to work with.

The Animation we created for this clash control showed us a few intereting clashes that helped prevent delay in the operation. At one point in the operation there was only a 10cm clearance of the equipment and the wall. Normally, this would not be within the accepted tolerance but due to the accuracy of the data we used, it was able to run through. Clash control is not the only area that is useful for 3D Animations & Visualization, using it for marketing can also be quite handy. We produced a marketing video for a “Guide Hook System” built for guiding pipes through the sea level, and showed the benefits of that system.





## ONSHORE / OFFSHORE SIMULATOR

We are a provider of stationary and mobile simulators. We provide a full end service developing everything from A to Z. Being a part of a large organisation helps us give you the best of both worlds. Our Software department will tailor the simulation to suit your particular needs and adjust it to the scenarios your company face. While our technical department will be able to provide you with a physical simulator as is, in the real world. This gives you the realism your workers need in order to transfer what they learn into the real world. We also have a focus on creating mobile simulators which allows you to move them to different locations. Either by vessel or onshore. It is a time consuming, and expensive process to book people into hotels and send them to simulator centres. Why not build your own simulator and have it available wherever it is needed?

## INTEGRATION WITH EXISTING SYSTEMS

Investing in the hardware for a simulator can be quite costly, but it is not always necessary. We are able to integrate our software solution into already installed equipment onboard your vessels. For instance, on vessels where you have an ROV installation, you no longer need to buy separate equipment for the simulator. Our software can be installed on the existing systems, and on the flip of a switch your pilots can practice the specific operation before reaching the designated destination.



**WESTCON**<sup>®</sup>