

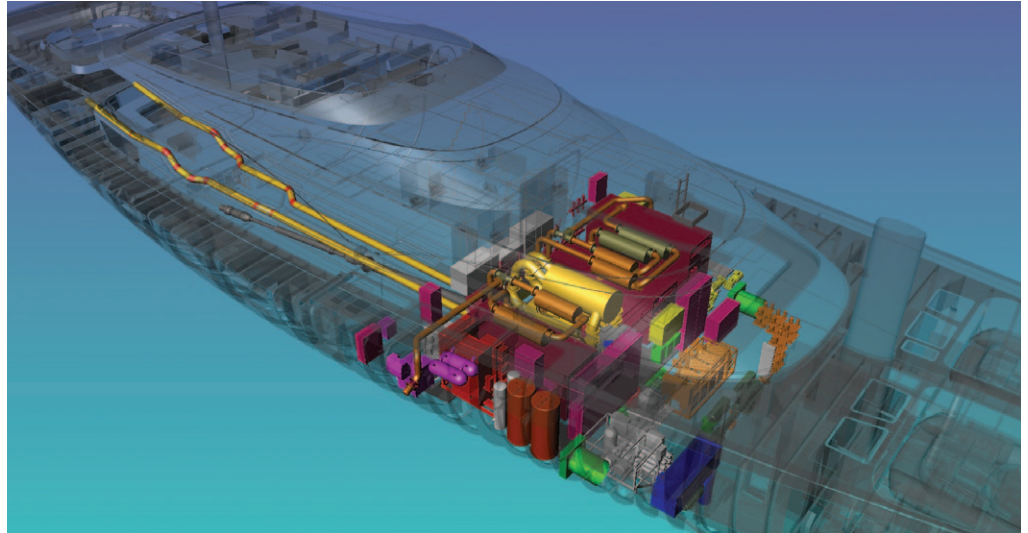
AutoCAD P&ID

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—Lambertus Oosterveen  
CAD Manager  
Royal Huisman

# Streamlined operations create clear sailing.

Royal Huisman integrates its design and engineering operations with AutoCAD® and Autodesk® Navisworks®, and AutoCAD®-based ShipConstructor.



## About Royal Huisman

Based at Vollenhove, in the heart of the Dutch maritime industry, Royal Huisman is a world leader in the design and fabrication of custom-built super yachts, ranging in length from 30 to 90 meters. Established in 1884, and granted a Royal warrant in 1984, Royal Huisman produces unique, individually designed craft, priding itself in being able to call upon this long legacy of specialist craftsmanship. Its edge in this highly competitive global market is maintained by closely combining these entrenched skills with an array of the very latest technology in design and build systems. Its vision is one of constantly developing Intelligent Engineering.

## Exacting Needs, Comprehensive Solution

The design team of 70 staff members uses AutoCAD extensively, as well as the industry-specific add-on ShipConstructor and Autodesk's Navisworks. It has piloted AutoCAD P&ID to handle the production of schematic diagrams, and has now adopted the system in a live design project, as Lambertus Oosterveen, Royal Huisman's CAD manager explains.

"We had been AutoCAD users since 1985 and had gradually customized it ourselves to allow us to use it more flexibly as a schematic package, adding a menu for P&ID symbols and linking it to an Access database—then to an SQL database—so that we

could produce the reports we wanted, but also link to a purchasing system and so on. Five years ago this looked very modern, advanced even, but we now want more from the system than it can offer."

Erwin Wieringa, the team's CAD coordinator, is clear on how AutoCAD P&ID needs to fit the design team's overall requirements. "Our vision is to work wherever possible in 3D models. As you can imagine, professional presentation graphics are paramount in this industry. We need to be able to show the client exactly what he's going to get from us and be able to walk him through the ship, in virtual reality, before he agrees to the commission. We also need to show the ship's engineer precisely what the layout of the working part of the ship will look like accurately—pipe runs, filtration systems, generators, etc. So we need a link between the 2D P&ID schematics and the 3D models. For example, if the P&ID draftsman puts a pump onto his schematic, the ShipConstructor designer has to put that pump into the model. We need to know that the pumps are the same, and if not, we need instant notification. The confined spaces on a ship leave us little room for maneuvering later. We began to ask ShipConstructor if they were going to develop a P&ID package a few years ago. They were not, but they knew that Autodesk was!"

# When we meet to review the design... there are no surprises.

"For us that was great news," adds Oosterveen. "We are heavily Autodesk based, and our knowledge of customizing and developing it means that making the links between systems would be possible, and also, of course, integration would be simple. We knew other P&ID systems had been around longer, but with a new release every year and the reputation of Autodesk, we knew that development would be rapid, so we arranged to see the product demonstrated, and soon after that we invested."

The product demonstration and subsequent delivery of the AutoCAD P&ID technology was completed by CADTEAM, based in Veenendaal, who is an authorized reseller for Autodesk's Plant Solutions products.

## The Solution

Royal Huisman was able to get started very quickly and has already experienced many benefits. Ann van Velthuysen is one of the main users. "It's easy to learn, and obviously quicker and more practical than standard AutoCAD. The Data Manager, allowing you to copy a symbol and take the background data with it, is very useful. But auto-trimming and healing lines are also great time savers. We don't have this function in AutoCAD, and (in AutoCAD) are spending hours cleaning up drawings after re-routing lines."

Oosterveen singles out the validation tool. "We can now check drawings on an individual and project basis for various mistakes. Flow arrows flowing in the wrong direction, size and specification

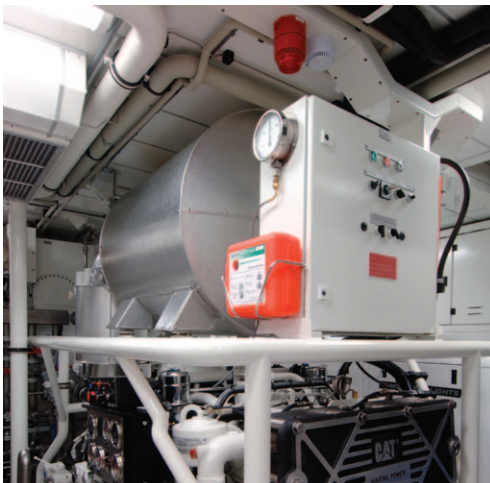
mismatches, off-page connector errors...not only that, but it looks for AutoCAD entities—lines, circles and blocks—that may have been added by others. So the dumb data on your intelligent P&ID drawings can be picked out. It may take a few minutes dependent on how big your project is, but it's a huge time saving over the old manual method and we're already seeing valuable development. Being able to publish the project is useful, not only for us, but also for the client's engineer who may be on the other side of the world. He can see the graphics and the P&ID data all in one file. Using the Autodesk Design Review tools, he can mark up, make comments or show revisions he wants to query, so when we meet to review the design, typically every six weeks, there are no surprises."

## Wide Systems Integration

Oosterveen and Wieringa are both clear that the speed and time-saving aspects of the new system are only part of the overall benefit. "The first meeting with the client and his team to delivery of the finished ship can take up to four years. So saving a few hours is useful, but not critical. Achieving our longer term vision for wider system integration is much more important," says Wieringa. "We want to be able to sit down with the client's engineer, take him through the 3D imagery of the ship, click on a pump, and have the properties which were generated in AutoCAD P&ID displayed there in the model so we can explain why that is the right pump, or filter, or generator. Because of our existing use

of AutoCAD and the ShipConstructor plug-in, and with Navisworks now being an Autodesk product, plus our confidence in Autodesk's development capability, AutoCAD P&ID was the natural choice to move toward this vision." Oosterveen expands on this. "We are also considering the Product Lifecycle Management of the ship. We want to be able to present the client's engineering team with a full set of absolutely accurate and, just as importantly, professional-looking operation and maintenance manuals on a DVD. The presentation of the P&ID drawings needs to reflect the fact that he is buying from the top-notch ship builder. They need to match our demands in terms of appearance. We are currently working on this customization. Even if it was not faster and more flexible than the previous systems, if it just allowed us to document the design better, that would be a goal achieved. We are confident it will do both."

Royal Huisman is clearly a technologically pioneering organization, with a clear vision of what they want now and in the future from the design systems they use. AutoCAD P&ID is helping to realize that vision.



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Royal Huisman