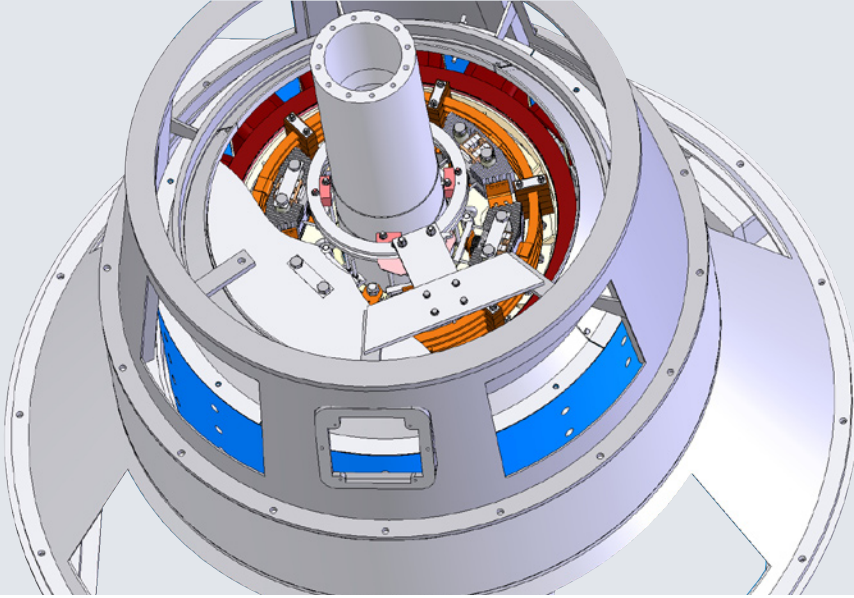


# VG Power AB

SETTING NEW STANDARDS IN HYDROELECTRIC GENERATOR DESIGN WITH SOLIDWORKS PREMIUM



Improved visualization and specialized capabilities, such as SolidWorks Routing software, help VG Power to evaluate and communicate design concepts for its massive systems, which typically include 15,000 to 20,000 components.

- Created first 3D-based hydroelectric consultancy serving Finland, Norway, and Sweden
- Improved interaction and communication with customers and suppliers
- Broadened access to external engineering resources
- Minimized design errors and increased customer confidence in its designs

The veterans of the Nordic hydroelectric industry, who joined together to form VG Power AB in 2002, foresaw a need for applying modern 3D design and engineering technologies to hydroelectric generator design and maintenance systems. Having used 2D design techniques for generator design prior to forming VG Power, the company's founders understood how a 3D-based design platform could save time and money, as well as support innovations and quality improvements in generator design.

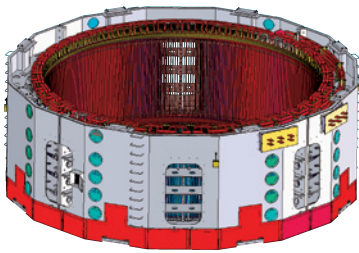
"The hydroelectric generator market, which is nearly 130 years old, had been quite traditional with nearly all the design and maintenance work completed using 2D tools," explains CEO Christer Parkegren. "While 2D design had served the industry well for many years, we knew that 3D design tools could have a substantial, positive impact on the market by providing improved visualization and communication of designs for these massive systems, which weigh between 300 and 400 tons and typically include 15,000 to 20,000 components. When we founded the company, we set the goal of bringing the benefits of 3D design to the Nordic hydroelectric industry."

The company evaluated the available 3D CAD systems before narrowing the choice to four: Autodesk Inventor®, I-DEAS®, Solid Edge®, and SolidWorks®. VG Power selected the SolidWorks 3D CAD system because it handled large assemblies well, represented the best value in terms of capabilities for the price, was the easiest to learn and use, provided access to a comprehensive set of add-on applications, and had the most momentum in the European engineering market.

"We believed SolidWorks software was better than any other 3D CAD system for pioneering hydroelectric generator design in 3D," Parkegren notes. "We also believed SolidWorks software afforded greater flexibility for working with external resources and engineering consultants."

**“SolidWorks Premium software gives us the full set of tools we need to create and validate our designs within a single, integrated environment, enabling us to develop higher quality systems more efficiently.”**

Christer Parkegren, CEO



By implementing SolidWorks software, VG Power became the first 3D-based hydroelectric consultancy serving the Nordic market, a position that enhances the company's value proposition to its clients.

## Gaining the competitive advantage

The implementation of SolidWorks software immediately put VG Power ahead of its competition as the first hydroelectric generator consultancy serving Finland, Norway, and Sweden to provide design services in 3D, according to Bo Hernnäs, VG Power design manager. “We had to be ahead of our competition from the very beginning because we were a new company,” Hernnäs says. “We knew the 2D world where we came from, and made the investment in SolidWorks 3D design software because it helps us to reduce risk, produce better-quality designs, and improve customer confidence in our work. In short, SolidWorks software has improved our value proposition to our clients.

“SolidWorks software provides us with better information procedures and design visualization, which are critically important when introducing new technologies to existing power plants,” he adds. “We create better-quality designs in SolidWorks software, which are easier to communicate to our clients. This capability gives us the edge that our competitors have begun to emulate.”

## Upgrading to SolidWorks Premium

VG Power's success with the base SolidWorks CAD package prompted its management to evaluate the broader range of capabilities available through the SolidWorks Premium suite, which includes SolidWorks Simulation analysis and SolidWorks Routing software. Recently, VG Power added two floating seats of SolidWorks Premium software to its existing seven solid modeling seats.

“We needed a complete solution because of all the auxiliary systems we develop,” Hernnäs points out. “The basic configuration of a hydroelectric generator consists of the dam, water flowing over the turbines, and the shaft that connects the turbines to the generator. Yet, there are many other systems, such as regulators, controls, transformers, piping, cooling systems, power train bearing systems, and lubricating systems. SolidWorks Premium software gives us the full set of tools we need to create and validate our designs within a single, integrated environment, enabling us to develop higher quality systems more efficiently.”

VG Power engineers use SolidWorks Routing to develop piping systems. SolidWorks sheet-metal capabilities help designers create ventilation systems and enclosures, while interference detection capabilities help to streamline the interactions with manufacturers. Plus, SolidWorks Simulation software enables the design validation of mechanical systems. The company uses a combination of visuals created with PhotoWorks™, SolidWorks animation capability, and SolidWorks eDrawings® software to communicate design concepts more effectively to its clients and suppliers.

## Greater flexibility drives business growth

The diverse range of capabilities within SolidWorks Premium provides the high degree of flexibility that VG Power needs to sustain and drive business growth. The flexibility afforded by the SolidWorks Premium design platform enables the company to tap external engineering resources more easily and to work with suppliers and customers more effectively. As a result, the company's annual sales have grown to \$18 million in just three years. “Generator design is an art, and using state-of-the-art tools like SolidWorks Premium helps design innovative, sophisticated products,” Parkegren notes.



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