

NX

Aquasub Engineering

Pump manufacturer increases productivity by 50 percent

Industry

Industrial machinery

Business challenges

Increasing workload made it difficult to meet customers' demands

Some design errors were not detected until manufacturing

Keys to success

Design software that is easy to learn and use

Parametric, knowledge-driven 3D design process

Seamless transfer of legacy data to NX

Synchronous technology for handling design changes in minimal time

Drawing automation

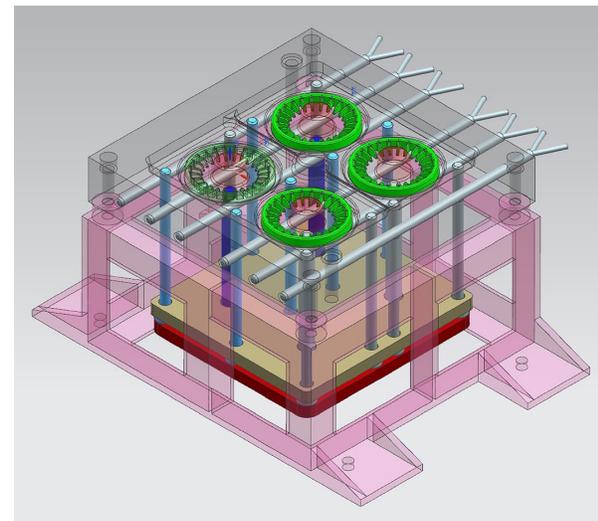
Efficient NC programming

NX helps company work more efficiently, reducing cycle time by 60 percent without an increase in staff

The Aqua Group consists of Aquasub Engineering and Aquapump Industries. As a leading manufacturer with more than 50 years of experience in the pump industry, the firm has a widely distributed network of 1,000 exclusive dealers and 18 branches across India. The company's extensive product line has been designed to suit a wide range of applications, including agriculture, domestic and industrial water supply, drainage and pressure boosting in high-rise buildings.

The Aqua Group has 8 units with a manufacturing capacity of more than 1,600 pump sets per day. Its infrastructure includes 2 automated foundries for ferrous and non-ferrous castings, an electrical lamination (stamping) unit, a fabricated stainless steel pump manufacturing facility equipped with more than 150 computer numerical control (CNC) machines and the latest laboratory instruments and testing equipment. The research and development (R&D) department is committed to the design of new products and to improving the performance and efficiency of its current products.

In addition to being certified by ISO 9001, the group practices total productive maintenance (TPM) in an attempt to strive for



continuous improvement. As a seven-time winner of the Export Excellence Awards granted by the Engineering Exports Promotion Council, the firm has earned a favorable reputation in the Middle East, Africa, France, Germany and Japan.

Leveraging legacy data

Aquasub Engineering uses NX™ software from Siemens PLM Software to ensure that it continues to meet customers' requirements, in spite of an increasing workload. The company uses NX for both computer-aided design (CAD) and computer-aided manufacturing (CAM).

One of the reasons NX was chosen was its ability to work with data created in other CAD systems, including the company's

Results

50 percent increase in productivity

60 percent reduction in design lead time and manufacturing setup time

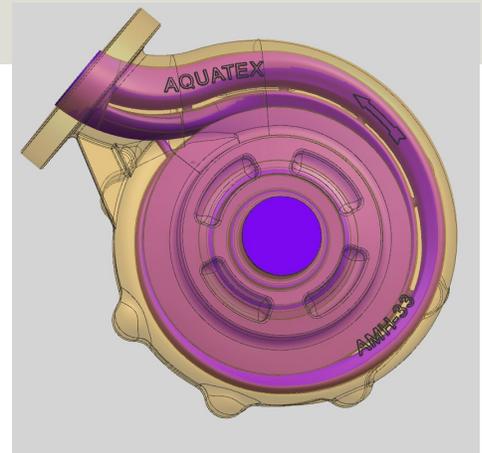
Faster product-to-market turnaround

Improved customer satisfaction

Increased competitive advantage

“NX cuts down the design time and thus our productivity has increased by 50 percent.”

N. Purushottama
General Manager, Foundry
Aquasub Engineering



own legacy data. “The NX digital product development solution from Siemens PLM Software gave us the option of transferring all of our history,” says N. Purushottama, general manager of the foundry at Aquasub Engineering. “We are using our legacy 2D drawings with NX for developing pump designs in 3D. The ability to re-use our legacy data saves design time.”

NX allows the company to work with data from a variety of CAD systems. Most of the data is compatible with NX and can be fully integrated into a new design. Even when data is not fully compatible, it can still be read and modified with direct modeling extension (DMX) functionality.

NX with synchronous technology makes it easy to revise existing CAD models – both new ones created in NX as well as legacy and customers’ models created using other CAD systems. “With DMX and NX, synchronous technology allows us to take dumb data and manipulate it as we like,” says P. Ramesh Kanna, junior engineer (CAD/CAM) at Aquasub Engineering. “This is very useful when we want to re-use an existing pump model instead of creating a new pattern and core box.”

Another aspect of NX functionality that Aquasub Engineering finds helpful is WAVE technology, which permits rapid development of new products from a common product architecture. The company is now developing a number of basic pump

models that incorporate important process knowledge. Functional interrelationships are controlled using a Microsoft Excel® spreadsheet, which drives the NX WAVE technology to create future design models and variants.

Drawings in the company’s standard format are created from the NX models with just a single click. The NX drawing functionality makes it possible to quickly explode an assembly to see all of the parts and automatically label them for bills of materials. In general, the use of NX has reduced drafting time.

Benefits extend to manufacturing

Improvements made possible by the use of NX have increased the productivity of the design team. “NX cuts down the design time and thus our productivity has increased by 50 percent,” says N. K. Sivaprakash, Aquasub Engineering’s assistant manager for development. The company has seen its design lead time drop by 60 percent. Manufacturing set-up time has also decreased by 60 percent.

NX CAM functionality has played a key role in manufacturing components to high standards of workmanship. Prior to NX, Aquasub Engineering had to conduct a number of trials before foundry tooling was put into production. At times, errors in tooling became part of a casting. By using NX to design tooling, Aquasub Engineering now validates its designs and

Solutions/Services

NX
www.siemens.com/nx

Customer's primary business

Aquasub Engineering is part of Aqua Group, a leading manufacturer of pumps.
www.aquagroup.in

Customer location

Coimbatore, Tamil Nadu
India

Partner

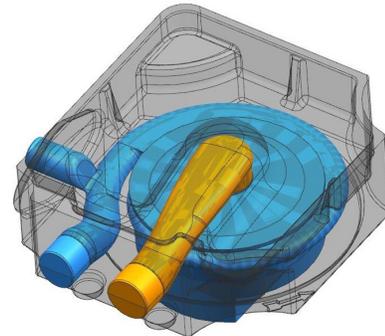
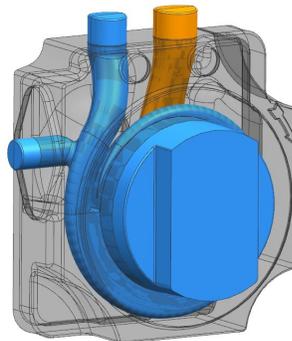
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finds any errors before going into production. "We can go directly to manufacturing without any trials," says Purushottama. Whenever the NX master model undergoes any design or process change, related numeric control (NC) programs and shop floor documentation are updated with a single mouse click.

With NX, Aquasub Engineering is not just saving time and money, the company is getting its products to market faster. "The customer response has been excellent," concludes Purushottama. "Thanks to using NX, our next-generation products will be better, and should help us to grow our market still further."



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