SIEMENS
Ingenuity for life

Siemens Industrial Turbomachinery

Design anywhere – make anywhere

Products
Teamcenter, NX

Business challenges

Advance products and solutions as the energy market evolves

Improve efficiency and return on investment by optimizing design and manufacturing resources across multiple sites around the world

Keys to success

Implement *design anywhere – make anywhere* strategy

Integrate different businesses with differing histories in related and complementary activities globally

Results

Ability to proactively address market changes and opportunities

Elimination of the need to re-engineer the entire product when enhancing existing products and developing new offerings

Speed and agility in responding to market changes and customer needs

Siemens Industrial Turbomachinery adopts Teamcenter to accelerate introduction of complete energy solutions
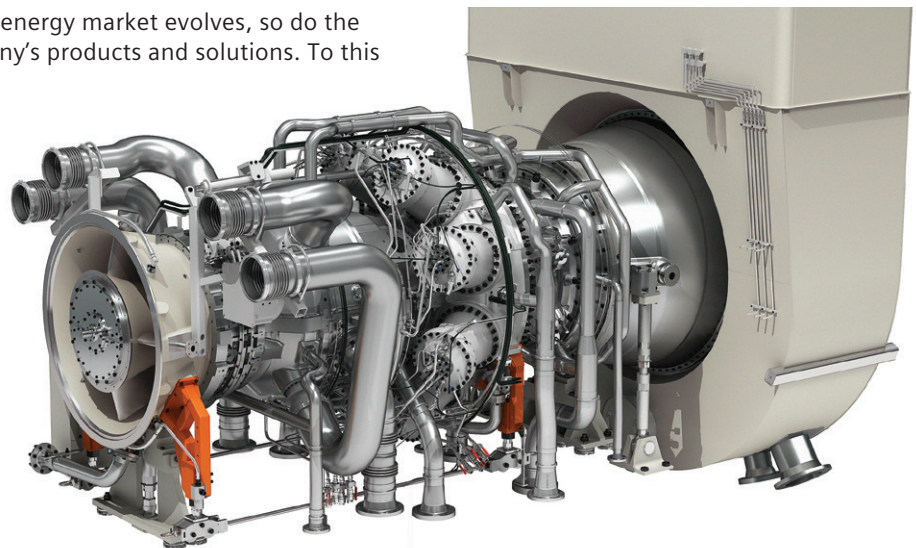
Design anywhere – make anywhere

With more than 3,600 gas turbine units sold and operating in 89 countries, Siemens Industrial Turbomachinery Ltd., a company in the Siemens Energy Sector, is a major exporter of gas turbines in the 4 to 15 MW range to the oil and gas industry. These units also have applications as completely independent and lower-cost electricity and heat generation solutions for large buildings, such as factories, offices, hospitals and universities.

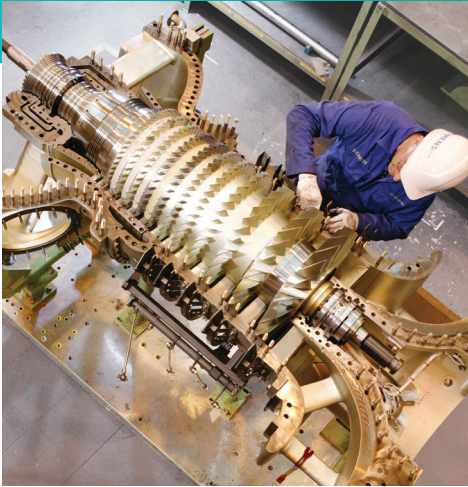As the energy market evolves, so do the company's products and solutions. To this end, Siemens Industrial Turbomachinery continues to invest millions of pounds in developing new technology that maximizes the performance of its customers' gas turbine plants. To ensure the success of this investment, Siemens Industrial Turbomachinery is using Teamcenter® software in the implementation of its long-term strategy to "design anywhere – make anywhere."

Unifying the differences

Siemens Digital Industries Software's Teamcenter is the world's most widely used product lifecycle management (PLM) system. Featuring a complete service-oriented architecture (SOA), easy-to-use interface and

siemens.com/software

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comprehensive end-to-end PLM solution set, the use of Teamcenter gives Siemens Industrial Turbomachinery greater power to meet customer needs and to deliver new and enhanced products and solutions to new and existing markets faster than ever before. Rob Stone, Senior IT Engineer, explains, "We will be working together globally across multiple sites throughout the Oil and Gas Division as we move from selling products – gas turbines – to selling complete energy solutions. To do this, we need all the design data for every element of those solutions – gas, steam, oil turbines, pumps, compressors, generators, mechanical drives – even though those items may originate at another site." Stone adds, "This presents us with the challenge of taking a whole set of different businesses in various locations and with differing histories, but in related and complementary activities, and making them work as one integrated whole. The unified architecture of Teamcenter allows us to address this."

A world leader – Siemens Energy Sector
Siemens Energy Sector is the world's leading supplier of a wide range of products, services and solutions for the generation, transmission and distribution of power, and for the extraction, conversion and transport of oil and gas. Within Siemens Energy Sector, the Oil & Gas Division portfolio includes solutions for power

generation and distribution, compressors with electrical and mechanical drives, steam turbines, gas turbines, process and automation technology, water management and integrated information technology (IT) solutions. In fiscal 2010, Siemens Energy Sector generated total revenue of €25.5 billion and profit of €3.6 billion. The Sector has about 88,000 employees worldwide, with approximately 1,500 staff at the Siemens Industrial Turbomachinery facility in Lincoln, United Kingdom.

More than 150 active Teamcenter users
Teamcenter had been used at the Lincoln facility to manage both computer-aided design (CAD) data and computer-aided manufacturing (CAM) data for more than five years, prior to the site being acquired by Siemens. Stone and his colleagues in IT assumed responsibility for it in 2007, and there are now more than 150 active Teamcenter users in Lincoln, with up to 60 of them accessing Teamcenter concurrently. Explaining the current situation, Stone notes, "We deliver four platform sizes from our Lincoln facility, SGT-100, SGT-200, SGT-300 and SGT-400, but each could be built in a number of different configurations to meet customer requirements. Each product contains roughly 150,000 individual components, every single one of which has a 3D CAD representation created with NX."

A team-based approach drives design. Stone describes the process: "Our engineers work in product teams that create and manage the design of our products. Most engineers are using NX CAD and some are using NX CAM, but they are all using Teamcenter to acquire the source data. Engineers can be in different locations on this site, but they still work as teams, not as compartmentalized departments."

Stone adds, "Teamcenter enables our engineers to securely access all information related to the product definition, and it automatically generates bills of materials (BOMs). The Teamcenter BOM data is then transferred to the BOM in SAP, our enterprise system. Manufacturing can then take its data directly from Teamcenter, with complete confidence that the data is accurate, up-to-date and at the right release."

Effective concurrent engineering across sites

"The lifecycle of our products is very long," says Stone. "Buy one of our turbines today and you'll still be using it in 25 years, and we may be called on to modify or upgrade it at any time." He points out, "To do that, we'll need all the original data, which is why any data that existed purely on paper has been migrated into Teamcenter. If it wasn't for the database approach engaged by Teamcenter, designing such upgrades would be really time-consuming, as we'd have to go through all the folders and files looking for any changes."

Of particular importance is the ability to work simultaneously across sites worldwide. "Concurrent engineering is far better and easier to achieve in a database-driven system, such as Teamcenter, compared with a file- and folder-based system," says Stone. "Teamcenter allows users to work concurrently on an assembly. We have engineers here in Lincoln seamlessly working with the Swedish Teamcenter database seated in Sweden, with Swedish engineers seamlessly working with the database seated in Lincoln. Our plants in Brazil, China, India and the Czech Republic are also about to be given access to the same set of data for manufacturing purposes."

Engaging new opportunities with speed and agility

"The use of Teamcenter has helped us to respond to market changes and new opportunities," says Stone. "When enhancing existing products and when developing new ones, we don't need to re-engineer

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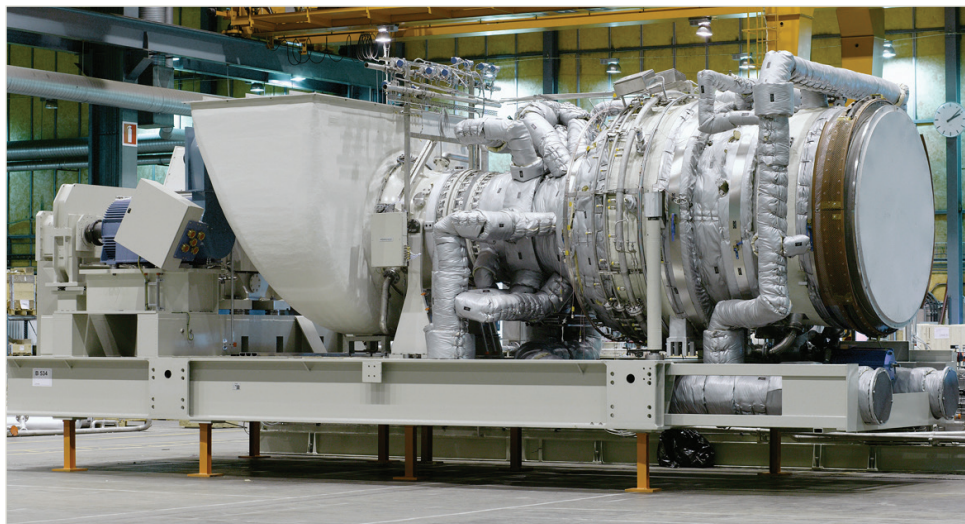
Solutions/Services

Teamcenter
siemens.com/teamcenter

NX CAD
siemens.com/nx

NX CAM
siemens.com/nxcam

Customer's primary business

Siemens Industrial Turbomachinery designs and manufactures gas turbines in the 4 to 15 MW range for the oil and gas industry.

Customer location

Lincoln
United Kingdom

the entire product. We can take the existing design data, re-use it and adapt key components to move into that new market. The extra performance comes from the new geometry of key components, aerofoil changes for example, whilst maintaining common items, such as casings. This way we can maintain common products, whilst giving the flexibility our customers require."

Speed and agility are critical to success. "If we see the market is moving a particular way, or we see an opportunity to sell enhancements to our installed products, we can react quickly," notes Stone. "For example, when we decided to sell enhancements for our 4.2MW sets to 4.4MW, we knew we could find the right data quickly and easily. Now, we are branching into markets which require the development of new products and also the engineering of enhanced features on existing products. Due to the demand for increased fuel flexibility, for example, we saw the opportunity for improving fuel flexibility, and subsequently investigated the performance factors and are engineering the product lifecycle to move into that market."

Synchronizing the activities of globally dispersed teams

"We are currently customizing our future configuration of Teamcenter, taking into account our projected business requirements," says Stone. "The process of migrating to the current version of Teamcenter has already started. It won't be one database trying to talk to another
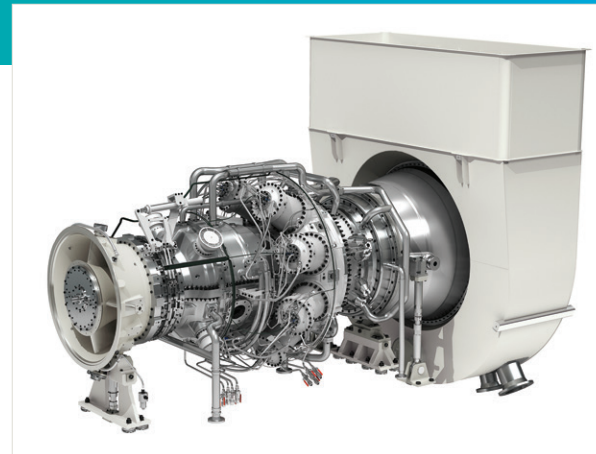
database. We'll all be using one instance of Teamcenter, which will enable us to synchronize the activities of globally dispersed teams. Data-sharing requirements across sites will be addressed, so we can optimize design resources and manufacturing resources globally. Hengelo in the Netherlands and Görlitz in Germany have already started using the unified architecture of Teamcenter, with Duisburg and Nurenburg joining them later in 2011."

A strategic investment with enterprise-level benefits

Stone concludes, "The migration, which will be completed by 2013, will help us respond to market conditions and needs with new products and new solutions, and it will help us accelerate new product introductions." Stone explains that moving to the unified Teamcenter solution is not an information technology implementation per se, but rather a strategic business roll out: "We are not doing this for the benefit of IT; we are doing this for the benefit of the whole business."