

Solid Edge

## L&T MHI Boilers

Meeting India's energy needs with fast design

### Industry

Energy and utilities

### Business challenges

New product development

### Business challenges

Speed boiler design to meet India's growing energy demand

### Keys to success

Parametric modeling

Control over interlinked assemblies

Early interference detection

Automatic revision control; error-free revision management

Fast information searches

### Results

Detailing cycle time reduced by up to 40 percent

3D models provide better understanding

Clash-free assemblies

Fast BOM generation contributes to shorter design cycle

### Solid Edge help speed the design process for supercritical pressure boilers

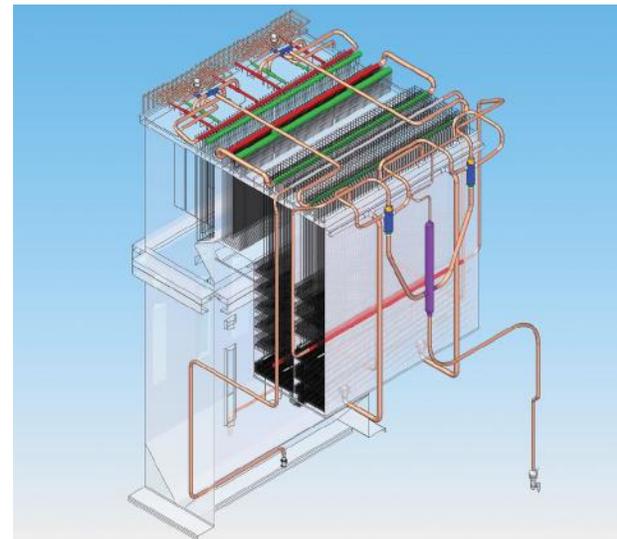
#### Company targets growing market

L&T MHI Boilers Pvt. Ltd. is a joint venture company formed in 2007 by Larsen & Toubro Ltd. of India and Mitsubishi Heavy Industry of Japan. The company's mission is to design, manufacture, supply, build and commission supercritical pressure boilers used in coal-fired power generation plants. These boilers, which have operating capacities of between 500 and 1,000 megawatts are aimed at the Indian market in response to the country's rapidly growing electricity demand.

Supercritical pressure coal-fired power generators use higher steam temperatures and pressures than subcritical pressure power generation, and are more fuel-efficient and environment friendly. By reducing coal consumption relative to power output, carbon dioxide emissions can be reduced by approximately 5 percent. However, supercritical-type generation requires more sophisticated equipment design to withstand the high temperatures and pressures, and fabrication of high-strength component materials is a complex task.

#### Need for 3D

To enable a fast response to market demand, management at L&T MHI Boilers Pvt. Ltd. decided that the entire design process for supercritical boilers would be



done digitally in a 3D environment. The design process includes plant modeling, process design, pressure part design, non-pressure part design, electrical, control and instrumentation, and structural design. Company representatives evaluated a number of 3D CAD systems through both demonstrations and in-house trials.

The company chose the Solid Edge® design solution from Siemens PLM Software for several reasons. First, it was capable of managing the large assemblies that they would be creating. Other areas where Solid Edge won out include: user friendliness, better 2D drawing output, the ability to export models and assemblies to Smart Plant 3D (SP3D) and customer support.

## Solutions/Services

Solid Edge  
[www.siemens.com/solidedge](http://www.siemens.com/solidedge)

## Customer's primary business

L&T MHI Boilers Pvt. Ltd. designs, manufactures and sells supercritical pressure boilers used in coal-fired power generation plants.

## Customer location

Faridabad  
India

## Channel partner

Digital Design Solutions

**"We have experienced proven advantages from the use of Solid Edge."**

K.C.Rao  
Joint General Manager  
L&T MHI Boilers Pvt . Ltd.

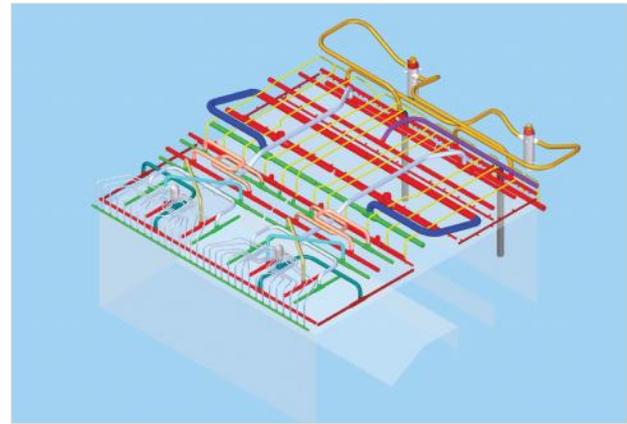
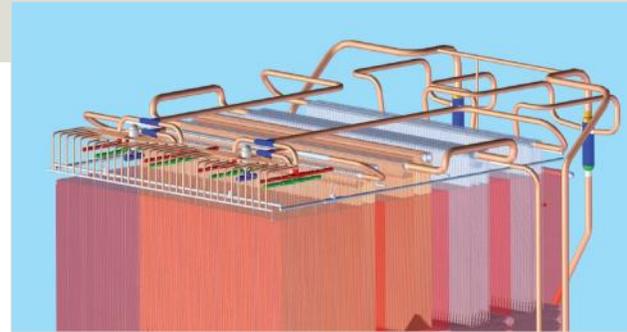
The original Solid Edge implementation was a pilot program with five licenses of Solid Edge. That has since been expanded to a total of ten licenses. Solid Edge is currently being used to model and detail all the pressure parts of the boiler including water walls, headers and header supports, reheaters, superheaters and economizers, roof housing water separator and its drain tank, manifolds and header interconnecting piping, flues and ducts, buckstays and casings.

## How they benefit

Designers take advantage of the functionality of Solid Edge to speed the design and detailing process for the boilers. For example, the parametric modeling functionality in Solid Edge makes it possible to quickly change and update models. Designers use the software's interference detection capabilities to find problems early in the design cycle, before they cause serious delays. This has helped hold down manufacturing costs.

Solid Edge also enables control over huge numbers of interlinked assemblies, something that is very difficult to manage in a drawings-based process. The automatic bill of materials (BOM) generation is another time saver that contributes to a faster design cycle. Similarly, the ability to quickly generate drawings from the 3D model has reduced detailing time by 40 percent. Solid Edge speeds the design process by reducing the time it takes to find information, and also by providing automatic revision control and error-free revision management.

L&T MHI Boilers Pvt. Ltd. plans to add more licenses of Solid Edge as its business grows. The company is also considering the use of analysis software as well as some software customization. Other future



plans include linking the BOMs to the ERP system as well as exporting design information to Excel, MS Access and Oracle. There are also plans to link Solid Edge with other applications within the design process including Smart Plant SP3D, STAAD PRO and CAESER. Finally L&T MHI Boilers Pvt. Ltd. plans to create a customized standard part library. In each of these ways, the company will extend the benefits of Solid Edge to speed the development of the boilers and meet the country's demands for energy.

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