

NX

## Sansera Engineering

Forging company reduces development time from 16 to 6 weeks and realizes 20 percent cost savings across product operations

### Industry

Automotive and transportation

### Business challenges

Unacceptably long development times and poor forging quality  
Costly rework  
Slow new product development

### Keys to success

Benchmarking software systems to determine best solution  
Freeform and advanced modeling features  
Ability to prepare required parts and designs

### Results

20 percent cost savings across product development operations  
Development time reduced from 16 to 6 weeks  
Die rejection rate reduced significantly

### Sansera Engineering meets product development challenges with new approach to design

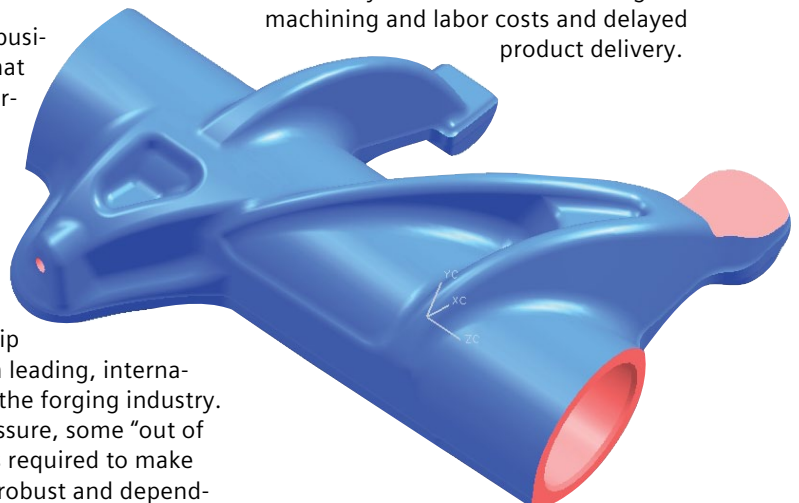
#### Product consistency problems drove quest for better CAD/CAM system

Sansera Engineering manufactures complex forged components for major automotive OEMs in India and around the world, including crank shafts, rocker arms, gear shifter forks, connecting rods, etc. To help meet the demands of its customers, Sansera Engineering was looking for an integrated computer-aided design/ computer-aided manufacturing (CAD/CAM) system with a proven track record in the forging industry, along with industry experience and know-how from a proven provider.

The company's main business challenge was that customers were requiring faster product delivery times for increasingly complex products. Evolving design complexity meant pressure in terms of cost as well as higher workmanship standards on par with leading, international competitors in the forging industry. As a result of this pressure, some "out of the box" thinking was required to make manufacturing more robust and depend-

able to achieve better results. Sansera needed to move faster and find new ways of meeting the needs of its customer base.

Sansera had been working from 2D drawings for design, and then manually programming its computer numerical control (CNC) machinery. This methodology was no longer adequate as it took too long to create electrodes and to respond to engineering change orders. Moreover, Sansera Engineering depended heavily on the skill sets of its engineers and had no way to capture their knowledge and experience in new product development. The forging cycle took nearly 16 weeks. Product consistency was another challenge. Rework was absorbing significant time, including time to make product repairs and re-engage machinery, which in turn led to higher machining and labor costs and delayed product delivery.



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P. Mahadeva  
Senior Manager  
Product and Die Design  
Sansera Engineering

**"For an integrated rocker arm project we recently completed using NX, the draft was three-dimensional and so complex that I can't imagine it would have been possible to handle using other software."**

L.D. Sathish Hoysal  
Senior Manager  
New Product Development  
Sansera Engineering

#### **Ease of use and advanced features demonstrate the value of NX**

To select a new 3D CAD/CAM system, Sansera benchmarked several vendors' solutions, including NX™ software from Siemens PLM Software. "Before selecting NX, we were facing numerous problems specifically related to design flexibility," says P. Mahadeva, senior manager of Product and Die Design at Sansera Engineering. "We decided to invest in high-end software and chose NX for a variety of reasons, especially its sophisticated design capabilities and proven strengths in significantly reducing design time.

Mahadeva notes, "As part of the benchmark, we asked all the vendors to design a specific and highly complex forging model, along with the dies, and to create and generate the toolpaths. If a model changes, we wanted the toolpaths to also change automatically, knowing that such an integrated approach would help save us a lot of time. Ease of use, modeling features such as hybrid modeling, robust blending, accuracy, expression-based modeling, re-use capability and forging references led us to select NX over the alternative systems."

NX demonstrated its value early on. Using the design capabilities of NX, Sansera Engineering resolved problems that the company had been experiencing related to sophisticated blends in dies. With NX, users can now easily and quickly create models that previously were difficult to handle. "When we design an axle or shaft, the main concern is to implement the exact draft and different blends, so the software must be flexible enough to accept the features easily," says L.D. Sathish Hoysal, senior manager of New Product Development at Sansera Engineering. "For an integrated rocker arm project we recently completed using NX, the draft was three-dimensional and so complex that I can't imagine it would have been possible to handle using other software."

#### **Compelling results from use of synchronous technology**

The forging cycle has been reduced from 16 to 6 weeks. In addition, the company has tracked a 20 percent cost savings across product development operations, while the number of die rejections has been reduced substantially. The success Sansera Engineering has experienced with NX has helped the company enter a new market: the global aerospace industry.



## Solutions/Services

NX

[www.siemens.com/nx](http://www.siemens.com/nx)

## Customer's primary business

Sansera Engineering develops precision forged and machined components for automotive and aerospace applications.

[www.sanseraindia.com](http://www.sanseraindia.com)

## Customer location

Bangalore

India

## Partner

Three D Design Automation  
Solutions Pvt. Ltd.

"The integrated approach of NX CAD/CAM has played a key role in our ability to manufacture parts to higher standards. Using NX CAM, our engineers were able to successfully generate the programs required for machining the part that was then checked on our Zeiss CMM. The critical, circular angular faces were found to have an accuracy that exceeds customer requirements."

Kiran

Deputy Manager

Product and Die Design

Sansera Engineering

"The integrated approach of NX CAD/CAM has played a key role in our ability to manufacture parts to higher standards," says Kiran, deputy manager of Product and Die Design at Sansera Engineering. "Using NX CAM, our engineers were able to successfully generate the programs required for machining the part that was then checked on our Zeiss CMM. The critical, circular angular faces were found to have an accuracy that exceeds customer requirements."

Mahadeva concludes, "The latest version of NX now leverages synchronous technology, which eliminates the need to choose between constraint-driven or history-free modeling. It also eliminates the concerns associated with using data from multiple CAD systems. The use of synchronous technology provides numerous features that have helped us to effectively modify models in significantly less time."



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