# Veeco Accelerates Rapid Growth With I-DEAS™

## SITUATION

Veeco is a leader in process equipment and metrology equipment used in the manufacture of data storage devices, semiconductors, and flat panel displays. Veeco's objective is to grow sales to $500 million by 2001, fueled by the growth of the PC industry, and by growing hard drive storage requirements driven by new software, Windows NT, computer networks, voice recognition and multimedia video applications. To achieve their sales goal, Veeco is broadening its product line through both acquisitions and internal development. This puts pressure on the design department which must create entirely new products and bring them to market at the computer industry's "need-it-yesterday" pace. The company's 2D CAD system just didn't support the fast turnaround Veeco required, so officials had to find an integrated 3D CAD/CAM/CAE system that could.

## OBJECTIVES

Implement a new CAD system that could support Veeco's aggressive growth strategy by helping the firm reduce the time needed to bring new products to market. This would be achieved by enabling collaboration among team members and reducing rework that resulted from fit and interference problems found during assembly.

## PROCESS VISION

✔ Migrate from their existing 2D CAD (Anvil-1000) to solid modeling to allow designers to create virtual assemblies in software and check interferences on-screen, reducing rework.

✔ Adopt an integrated system with the necessary data management tools to support team engineering. This would prevent the errors and delays caused when team members worked with out-of-date versions of their colleagues' designs. It would also allow more of the development process to happen concurrently by giving many users access to the design data.

*"Our challenge at Veeco was to develop an Ion Beam Deposition System, which included complex process geometry angles and required a short development time. I-DEAS, with its solid modeling as well as its concurrent engineering capabilities, gave us the tool we needed to be successful."*

- Ed Small
Manager, Design
Veeco Instruments Inc.

## ACTIONS

✔ After considering several solid modelers, Veeco officials narrowed the field to Pro/ENGINEER and I-DEAS Master Series™. They chose I-DEAS™ after the SDRC sales team's demonstration of the software's capabilities. The presentation made it clear that I-DEAS, running on Windows NT-

I-deas™

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based PCs, could model Veeco's components, combine them into assemblies, analyze them, and provide the visualization needed to detect and solve fit and clearance problems on-screen. The presentation also showed how I-DEAS data management tools supported concurrent engineering, and that the software would be easy for Veeco's designers to learn and use.

✔ An in-house training course, called "SDRC 101," helped Veeco designers start modeling actual parts in the new software within a week. The company completed its transition to I-DEAS in approximately one month. Since then, all new projects have been developed in I-DEAS.

✔ The team is now beginning to apply the power of I-DEAS analysis tools as well, using both structural and thermal analysis in the development of their equipment.

✔ In a typical project, several designers work together building components that are combined in I-DEAS to form assemblies. The ability to create virtual assemblies, along with the superior visualization provided by solid models versus line drawings, makes interferences readily apparent.

✔ The assurance that everyone is working with current versions of component models has improved collaboration and eliminated errors caused by out-dated information. In addition, it has allowed Veeco to speed the design process by letting some tasks take place concurrently. In the recent design of a chamber weldment, the weldment was simultaneously being detailed for manufacture while engineering was taking place. The software maintained associativity so that subsequent design changes were reflected in drawings and analysis models.

## RESULTS

✔ By using the software to detect and fix interferences before assembly takes place, Veeco has reduced rework by approximately 40%.

✔ The reduced rework and the improved collaboration made possible by team engineering have shaved months off the cycle time. Overall, the company has experienced a 25% reduction in cycle time, but some projects show even better results. A $1.5 million system was recently completed in five months, compared to an estimated eight or nine months that would have been required with the previous 2D approach.

## PLANS

Veeco has recently acquired several companies and is continuing its growth strategy through internal product development and strategic acquisitions. There are plans to introduce SDRC software into the acquired companies to permit the sharing of product development between facilities.

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