

SITUATION

Hoffman Engineering, an Anoka, Minnesota-based subsidiary of Pentair, makes electrical and electronic enclosures. Several years ago, company officials realized they weren't able to deliver customized versions of their best-selling product, the Large Enclosure, fast enough. To stay competitive, they decided they needed to change their development tools and processes, and bring a new manufacturing center online, dedicated to fast turnaround of custom products.

OBJECTIVE

Maintain a competitive position by reducing cycle time for custom products to that of standard parts.

PROCESS VISION

- ✓ Upgrade from 2D CADAM to solid modeling and use variable-driven design to quickly derive custom products from solid master models.
- ✓ Create a program that automates the re-engineering of a standard enclosure to meet custom specifications, and automatically generates manufacturing information for the new product.
- ✓ Automate the flow of information from order processing to shipping in a new manufacturing center dedicated to producing customized Large Enclosures.

ACTIONS

- ✓ Hoffman Engineering benchmarked several solid modeling systems and selected I-DEAS Master Series™ for several reasons. One, its open architecture allowed the company to augment I-DEAS software with programs that would automate the re-engineering process. Two, SDRC's CADAM translator ensured access to Hoffman's 30,000 CADAM drawings. Third, I-DEAS Team Data Manager™ functionality gave the company the ability to manage engineering data until it implemented an enterprise-wide product data management system.
- ✓ To run I-DEAS, Hoffman Engineering chose RS/6000 workstations (42Ts and 43Ps) from IBM. The RS/6000 is especially suited to high-performance MCAD applications, and Hoffman has had such good experiences with IBM as a supplier, they purchased 85 IBM RS/6000 workstations.
- ✓ Hoffman Engineering converted about one-third of its 30,000 CADAM drawings to I-DEAS format. Conversions are done by means of a Windows-based program, written in-house, that users run each time they need to access an existing drawing.
- ✓ Engineers then created numerous master I-DEAS assembly models representing the standard Large Enclosure product line, which encompasses different sizes from a single-door model to a six-door enclosure. These were modeled to take advantage of the variable-driven design

Hoffman Engineering Re-Tools With I-DEAS™



"By using I-DEAS™ software assembly models instead of 2D CADAM drawings, we dropped the time it takes to re-engineer an enclosure from two days to a few hours."

- Dennis Peterson
CAD/CAM Manager
Hoffman Engineering

capability of I-DEAS, to make it relatively simple to accommodate customer requests for slightly different shelf placements, height, width, or depth dimensions, and unique cutouts.

- ✓ SDRC and Hoffman engineers worked together to write a program, linked to I-DEAS through the software's open architecture applications. The program prompts users through five or six windows, having them enter customer-specific information for size and other options. Then the program automatically modifies the master models and generates manufacturing information.
- ✓ Hoffman Engineering built a new facility, located in Mt. Sterling, Kentucky and equipped it with an automated information processing system that works in conjunction with the new approach to re-engineering. The new facility will serve as the testing ground for Hoffman's efforts to automate engineering and reduce turnaround time.

Hoffman Engineering Re-Tools With I-DEAS

RESULTS

- ✓ The engineering component of producing a custom Large Enclosure (changing standard models to reflect customers' requests, and generating drawings and other manufacturing data) has dropped from two days using CADAM to a few hours using I-DEAS and the automated engineering program.
- ✓ Since the I-DEAS master models are made of primarily sheet metal parts, several additional hours are saved by using I-DEAS Sheet Metal Design™. This module unfolds each part into a flat pattern, accomplishing in minutes what had taken two to three hours to calculate manually.
- ✓ Company officials expect additional cycle time reductions from the use of the automated information processing system. This program will send output directly to the factory information system. This will distribute the views required to build the product throughout the manufacturing centers. In the past, manufacturing planners needed additional time to create routings and bills of materials, and put all the information into manufacturing packets.

PLANS

Hoffman's new engineering process, now being implemented at Mt. Sterling, may eventually be used by the company's Anoka, Minnesota facility as well. In time, all custom enclosures may be designed this way.

Hoffman is also considering involving their sales representatives in the new system, and compressing the cycle even further, by allowing the representatives to use the automated engineering program when working with a customer in the field. After they key in the enclosure dimensions and other specifications via their laptop computers, the engineering data will be automatically updated and downloaded to manufacturing.



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