



White-Rodgers

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**– Andy Geimer
Computer-Aided Engineering
Systems Manager**

Pace-setting Manufacturer Uses Solid Edge to Increase Productivity 70 Percent

White-Rodgers may not be a household name, but its products are everywhere – in homes, offices, restaurants and factories. A division of Emerson Electric Co., White-Rodgers designs and manufactures thermostats, valves and controls for residential and light commercial applications including gas hot water heaters, dryers and furnaces. The company maintains more than 8,000 active part numbers, operates eight global manufacturing facilities,

employs more than 4,000 people, and supplies products worldwide. Most work is done in-house, starting with computer-aided design, aluminum die casting, plastic injection molding, screw machining, automated machining, assembly and testing.

White-Rodgers also has the distinction of being the first HVAC manufacturer in the United States to have its quality system agency certified under ISO 9001 standards. While not well known to the consumer, White-Rodgers is a preferred choice of Original Equipment Manufacturers (OEM) design engineers and aftermarket contractors and installers in the HVAC and appliance industries. Principal customers include all major HVAC, appliance and water heater OEMs. In the HVAC aftermarket, White-Rodgers controls are stocked by virtually all of the major wholesale distributors.

Staying on Top

White-Rodgers has set the pace for the industry since 1936 and continues to introduce innovative products. Maintaining this leadership position requires that White-Rodgers be able to design quickly and manufacture efficiently. Andy Geimer, computer-aided engineering systems manager for White-Rodgers in St. Louis, Missouri, knows this requires state-of-the-art CAD/CAM/CAE systems. Geimer intimately understands the products and the total process. He started with the company 24 years ago on the shop floor and progressed through CNC programming, manufacturing engineering and design engineering.

In the past four years under Geimer's leadership, the White-Rodgers design department gradually and methodically transitioned from an old UNIX-based CAD system to Solid Edge, a Windows-based solid modeling design package. In addition to a need for substantially enhanced productivity, his group was frustrated working on two totally different platforms. Engineers commonly spent up to a half hour a day simply switching from design programs on a UNIX partition to the company's standard business applications like e-mail, word processing or a portal to the MRP system on a Windows NT partition. The reboot process alone took four to five minutes – clearly a waste of design time.

Beginning in 1996, Geimer kept abreast of numerous Windows NT applications that would meet the company's design needs, but also fit the company's budget. He considered several 3D modeling programs that were either too hard to use, too pricey and/or too proprietary. White-Rodgers needed to share data easily with vendors and manufacturers. At that time Solid Edge Version 1 was a new, unknown quantity, but Geimer was intrigued by its fresh approach and ease of use.

Solid Edge Meets the Challenge

Geimer describes the beginning of the transition as a two-year experimental test. Initially, four years ago Solid Edge Version 1 did not have all the features that White-Rodgers needed. One important issue was the ability to directly convert drawings from the legacy system. The Parasolid kernel added in Version 5 made this possible and easy. Solid Edge has an aggressive development program, and each new release quickly arrived on the heels of the last. As each brought more and more functionality, White-Rodgers added more and more seats of Solid Edge. Today the core design group uses 21 seats to model housings and inner components for thermostats and valves.

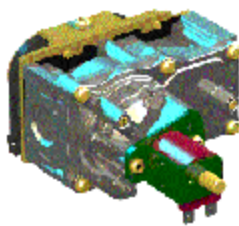




"The software has matured so quickly and every release brings new powerful features that we need," says Geimer. "Today the program is meeting most of our needs and the transition is almost complete."

There were challenges in the beginning, Geimer explains. "One huge obstacle was conditioning designers to think in 3D and actually use the feature-based power of the program. At first if they wanted to change a wall thickness, they would want to move a line on the drawing instead of changing a dimension in the model." Fortunately, he says that Solid Edge is so easy to use that they began using it before going to an intensive training program. Now the designers and the drafters are up to speed.

Geimer also likes Solid Edge's integrated modeling and drafting. Not only are drafters comfortable receiving approved models directly from the designers, but they also can quickly produce the 2D and 3D drawings needed on the shop floor. "We are



beginning to use Solid Edge in manufacturing engineering where product designs are used to directly create manufacturing fixtures and virtual tooling," says Geimer. "Since it is easy to configure placement of hole and alignment features in the assembly environment, we can maintain what one manufacturing engineer calls 'concurrent detailing.' From the start of a fixture design to completion, we are experiencing a 70 percent reduction in time. Since our products are market driven, we frequently require new designs or changes to existing ones. Product and design engineers are able to progress from concept to design in a day vs. a week with the old system. Design is faster because it is simpler."

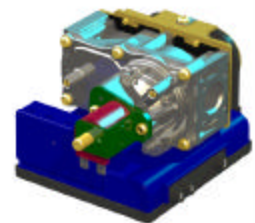
According to Geimer, one underlying factor in this significant productivity gain is the integration of many programs with Solid Edge. An example is COSMOS/DesignSTAR for Solid Edge, from Structural Research & Analysis Corp., the program White-Rodgers uses for finite element analysis (FEA). Not only can the program be launched from Solid Edge, but also the designs are dynamically linked so that changes are automatically updated in the analysis program. What used to take eight hours in FEA, now only takes one hour.

Geimer says that the Solid Edge Voyager Partner program is also beneficial to his department's ability to work efficiently in many ways. The fact that companies such as SRAC stay current with the latest revision of Solid Edge is important in the next phase of White-Rodgers' process development and increases the value of Solid Edge even more. For example, White-Rodgers is beginning an implementation of SmarTeam from Smart Solutions for product data management.

The benefits of Solid Edge go beyond design and manufacturing. The standard Windows functions built into Solid Edge allow White-Rodgers to insert objects into technical documents, product instruction sheets, catalogs and customer presentations. An unanticipated benefit is that the legal department now finds it easy to obtain detailed information about the products to assist them in clearly communicating and demonstrating the integrity of the designs. This can be a very important issue in the gas valve business.

Geimer's team has also been busy creating a custom revision control program with Visual Basic inside Solid Edge and converting more than 1,700 legacy drawings to Solid Edge drawings and models. "We publish all of our working drawings on the company intranet in Adobe PDF format," explains Geimer. "Previously it took two applications across two platforms to get a UNIX CAD drawing into PDF format. This is now a single-step process, which is very important because we maintain more than 28,000 drawings in our system."

One can hardly describe this transition as a test any more – it's complete. In 1998 Geimer retired the UNIX system entirely and uses Solid Edge exclusively. "It is difficult to calculate the total benefit we are gaining with the productivity enhancements with such a versatile design tool," says Geimer. "We know it is great and we've gained back all that time we used to spend rebooting and switching platforms and then some."



Key Benefits for White-Rodgers

- 70% reduction in design time.
- Productivity gains with Voyager Program integration.
- No extensive training needed.

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