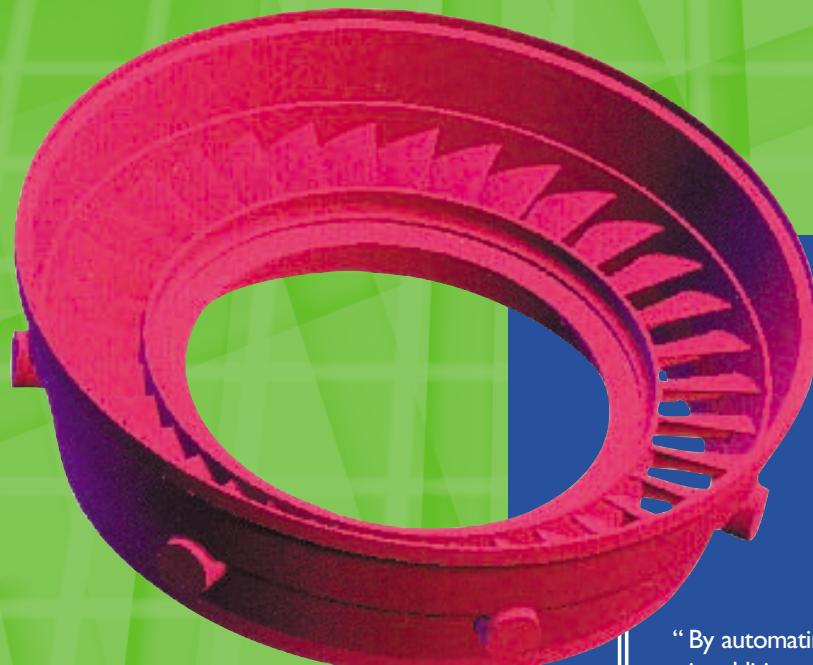


# **Southwest Turbine Propels Productivity with I-DEAS® Freeform**



“By automating our inspection process, in addition to reducing cost, we have increased our total annual output by 400%.”

Brian Clark  
Development Engineer  
Southwest Turbine  
Phoenix, Arizona

## Product

- I-DEAS® Freeform Modeler

## Applications

- product design
- first-article inspection

## Results

- 85% reduction in design time
- 90% reduction in inspection cost
- \$20,000 savings per design
- Produced continuous machinable surface

## Situation

Southwest Turbine, a leading aerospace supplier, specializes in turbine hardware repair as well as design and manufacturing after-market turbine engine components. To increase their competitive lead, while maintaining strict FAA and Parts Manufacturing Authority (PMA) certifications, they are continuously improving their design and manufacturing processes.



The design group implemented I-DEAS Freeform Modeler from SDRC to reduce the after-market component design process by 85% and reduce first article inspection cost by 90%. "With I-DEAS Freeform Modeler, we continue to produce high-quality parts, but in significantly less time. This enables us to exceed our customers' expectations," said Stephen Yeary, President of Southwest Turbine.

During the test and computation stage, several existing component parts of the same design are digitized to compare and specify tolerances for the new after-market product design. This stage could span up to five months, as digital points are captured with labor-intensive manual CMM equipment. Since there was no digital link between the CMM and their CAD system, the master model had to be created from the very beginning. This stage in the design process became very cost-prohibitive.

I-DEAS Freeform Modeler, used in conjunction with advanced scanning equipment, reduced the design test and computation stage to less than three weeks. This resulted in estimated savings of \$20,000 per designed part. Now, dense "point cloud" digital representations are automatically captured and brought into I-DEAS Freeform Modeler. From there, freeform surface models are created over the complex component part shapes. And because I-DEAS Freeform Modeler provides continuous machinable surface models into the Cimatron CAD/CAM system, design engineers can instantly make necessary modifications, as well as generate NC toolpaths for the mold machining process. By seamlessly linking the physical and digital worlds, Southwest Turbine has streamlined the design process to move into the manufacturing cycle more quickly.

Once the first-article component part has been manufactured, I-DEAS Freeform Modeler is used in a similar fashion for quality inspection. Digital representation of the part can be captured in days, rather than weeks; then automatically brought into I-DEAS Freeform Modeler for an accurate comparison against the original design intent. "By automating our inspection process, in addition to reducing cost, we have increased our total annual output by 400%," stated Brian Clark, Development Engineer.

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