

SITUATION

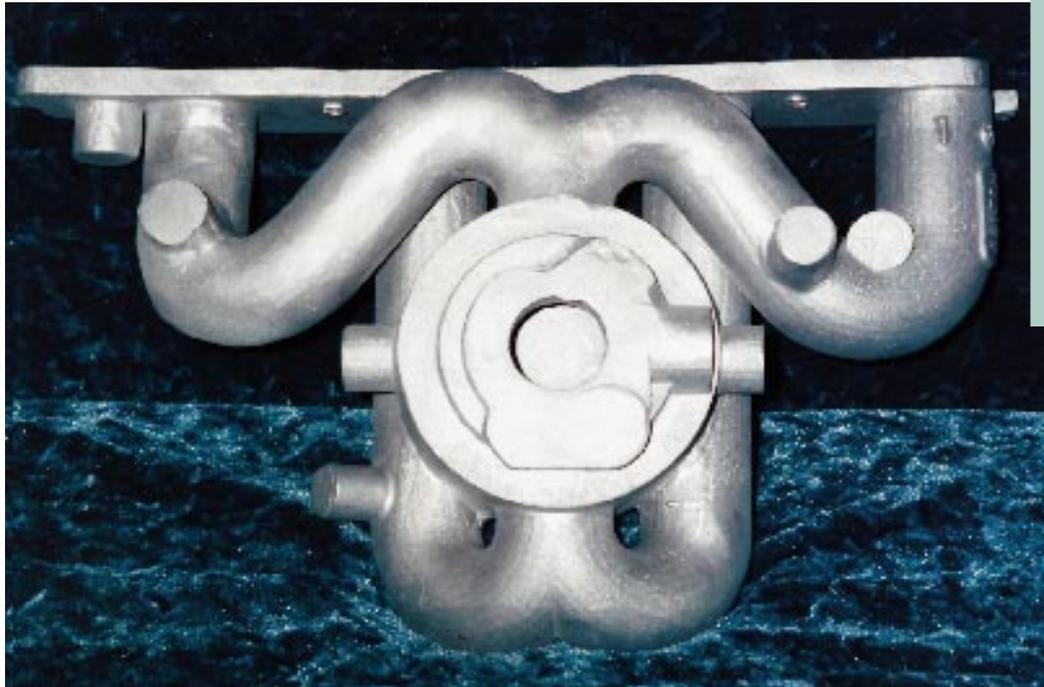
As a leading research and development organization, ORTECH sells technology solutions rather than a manufactured product. To increase market share and meet increasingly tough design challenges, ORTECH must find ways to deliver quality service, faster and at a reduced cost. Additionally, ORTECH needs to be able to meet complex design challenges such as the one featured below involving the design of an engine manifold for a four-cylinder automobile.

OBJECTIVES

- ✓ Design an innovative engine manifold for a four-cylinder automobile.
- ✓ Per the customer's direction, ensure that the throttle body fuel-injector system used an aluminum cast part.
- ✓ Complete the product development process in eight weeks.
- ✓ Design a manifold that would alternate drawing fuel from each side, resulting in a much better mixing than you would get with a normal manifold. (With a normal engine's breathing order, it draws fuel two times from the same side of the manifold, which reduces efficiency.)

PROCESS VISION

- ✓ Incorporate a software system that is powerful and easy to use, so that more time could be invested in the innovation and planning stages of the product development process. This fits perfectly with the company's philosophy of getting designs done right the first time.



**SIMULATION-
DRIVEN DESIGN
HELPS ORTECH
DESIGN RIGHT
"THE FIRST TIME"**

"I would highly recommend I-DEAS to any company investing in a CAD/CAM product. With I-DEAS, we have seen up to a 75 percent reduction in development time and less costly prototypes. We are passing these associated cost savings on to our customers."

- Richard Hannaby
Senior Designer
ORTECH Corporation

- ✓ Demonstrate to other prospective automotive clients that ORTECH could complete timely and innovative automotive component challenges.
- ✓ Use modeling capabilities to further refine concept designs early in the design process, so that when it comes time to generate a prototype, it's more accurate and easier to make.

ACTIONS

- ✓ Using I-DEAS Master Series™ software, ORTECH first designed a 3D model of a much different manifold. ORTECH was able to optimize the 3D model using I-DEAS™ simulation and analysis capabilities.
- ✓ Then, I-DEAS data was read by a rapid prototyping machine which generated a full-scale plastic model. In this particular case, the customer mandated that the throttle body fuel-injector system use an aluminum cast part, so the plastic model was used as a sacrificial master to make an aluminum casting.
- ✓ The casting was then machined and tested on an engine at one of ORTECH's laboratory facilities.
- ✓ Using I-DEAS, ORTECH designed a unique manifold that alternates drawing fuel from each side.

RESULTS

- ✓ Even with a complicated, breakthrough design, ORTECH was able to complete the entire product development process in an impressive eight weeks. In the past, a complex project like this would have taken at least six months.
- ✓ With the help of I-DEAS 3D modeling and analytical capabilities, ORTECH has been able to significantly reduce development costs for its clients. This is particularly important for ORTECH's automotive customers, who are increasingly demanding a reduction in product development costs combined with improvements in time-to-market.

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