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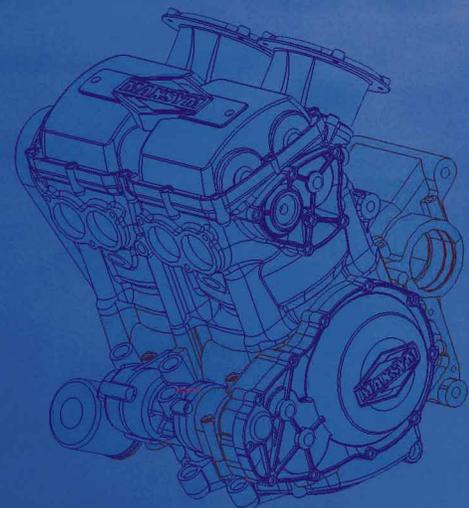
CASE STUDY



Motorcycle-engine model constructed largely of ABS plastic by Stratasys Prodigy office- modeling system.

Using a Stratasys modeling system, a design firm reduced engine-tooling costs by 75 percent and improved product development

At last year's SolidWorks World Conference, UK-based Steve Prentice Design Limited won the event's annual part-design competition. The company is an automotive engine and transmission design consulting firm. As part of the contest award, Stratasys – a SolidWorks Solution Partner – gave the company a Prodigy office modeling system to use for three months. Here's what firm owner Steve Prentice had to say about his experience.



"Quality Improved Beyond All Recognition"

"We used the Stratasys Prodigy™ modeling system on projects with our partner company Maxsym Engine Technology Limited, which manufactures and tests engine prototypes for leading OEMs. We made prototype quantities of 3 components that are now in use on running engines. The Prodigy has saved us the complication of machining the prototypes from solid. With the modeling system, we can quickly evaluate design changes. When we commit to production injection-mould tools, we're confident they will be right the first time.

We have created four whole-engine mockups with the Prodigy system. Two of these have been shipped to our clients in the USA for their vehicle mock-ups, and two have been used as main exhibits on our stand at Autosport International, the largest motorsport gathering in Europe. As a result of the excellent response to these engine mock-ups at the show, we will be accelerating our development program to get one of these to market as fast as possible.

These mock-up concept engines were designed entirely on a SolidWorks CAD system. We also use other popular CAD software when our clients insist on it, but we work 2 to 4 times faster with SolidWorks. We found it to be the most user-friendly and productive system available. This is especially true for complex-part and assembly design, where it outperforms systems that cost much more.

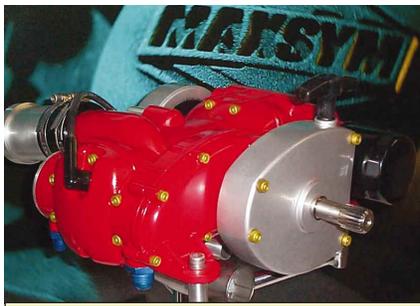
The Prodigy machine is as simple to use and maintain as an inkjet printer. It has run day and night without fault. I only wish our printers and computers were as little trouble as the Prodigy.

Before employing the Prodigy on a current project, we had problems with the quality of some small castings. This included poor surface finish, porosity, dimensional instability and the need for excessive hand-grinding to clean up the parts. The tooling and processing was not to the standard we expected, although it had cost us thousands of pounds. We then replaced the sand-cast process with an investment-casting process using ABS-plastic patterns built on the Prodigy. Quality improved beyond all recognition, particularly surface finish and

dimensional accuracy. In addition, the tooling costs with this process were reduced by 75 percent from the original sand-cast tooling.

This is the complete opposite to what we expected, but it is clear evidence of the advantages of the Prodigy modeling system. In the future, we will be extending this technique to larger and more complex engine castings. The whole experience has been a good one. We've improved quality, reduced costs for castings, and handled more engine-package projects than ever before."

Steve Prentice
17 Jan 2002



This personal-watercraft engine model is almost entirely ABS plastic. Only the gold screws and the splined output shaft are steel.



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