FASTER TO MARKET

PolyJet is a Game Changer for Accelerating Injection Molded Products To Market

"This is revolutionary…I estimate we've shortened our R&D process up to 35%, and this is on top of the 20% we're already saving on our design work. For me, it's fantastic."

— Patrick Hurst, Managing Director, Whale

These functional prototype diaphragms were made with Santoprene using a 3D printed injection mold (foreground). The CNC tool previously used to create the same part is shown in the background.

Tooling Obstacles Hinder Product Development

Based in Bangor, Northern Ireland, Whale Pumps designs and manufactures a diverse range of pumping and heating systems that include plastic and rubber parts for consumer and industrial applications around the world. The company employs an impressive in-house injection molding operation to manufacture the systems, but producing injection molds requires ordering costly CNC tools that typically take four to five weeks to create, are very heavy to transport, and cost tens of thousands of pounds sterling. Furthermore, Whale outsources its functional prototype parts from service bureaus often located in China. All of these factors greatly slow down the R&D process and substantially delay the launch of new products to market.

Patrick Hurst, Managing Director of Whale.

3D Printing is The Solution

Accelerating the time to market and enhanced product innovation are key drivers to Whale's success. To achieve this, Whale investigated the benefits associated with 3D printing.

"We saw 3D printing as a brilliant opportunity to change our business, reducing risk and the need for re-engineering. So we started looking at the most advanced 3D printing technology," explains Patrick Hurst, Managing Director for Whale.

The company purchased a Stratasys® 3D Printer which utilizes PolyJet™ technology. Soon corporate engineers were producing prototype parts in multiple materials and colors.

"Literally a week after we received the machine, it was being fully utilized. Then, because of the overwhelming demand, we bought another Stratasys 3D printer a few months later," recalls Patrick.

3D printed injection molds for various applications made with ABS material.

Stratasys
FOR A 3D WORLD™

Besides creating prototype parts, Whale began to consider 3D printing its injection molds. Initially, corporate executives were skeptical about how the molds would hold up, but after some experimentation, the 3D printed molds were seen as a major breakthrough for the production of functional prototype parts in end-use materials.

“Working with Stratasys we were able to develop a material blend that supported higher temperatures and pressures, and adapt our operations to cope with different molding environments,” said Jim Sargent, head of Whale Technical Services.

Multiple Measures of Success

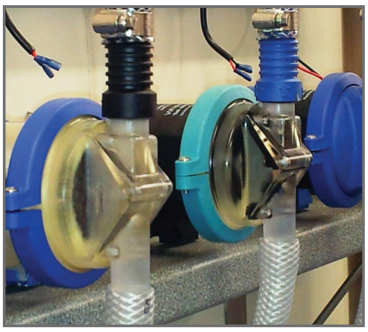
Whale is now 3D printing its injection molding tools with Digital ABS in less than 24 hours at a fraction of the cost of producing metal tools.

“With our Stratasys 3D Printer, we are now able to design our tools during the day, 3D print them overnight and test them the next morning using a range of end-product materials. The resulting time and cost savings are game changers for our business.”

For Whale, the versatility of PolyJet technology confirmed that it was the right choice for them. They are able to 3D print with multiple materials and colors, specify different Shore hardness ratings, and create parts with extremely accurate resolution. Whale’s executives are so confident in the capabilities of their 3D printers that they now offer rapid prototyping of polypropylene and polypropylene glass - filled parts to its customers.

For Patrick Hurst, PolyJet 3D printing has truly made a positive impact for Whale’s product development cycle.

“This is revolutionary for our business,” says Hurst. “I estimate we’ve shortened our R&D process up to 35%, and this is on top of the 20% we’re already saving on our design work. For me, it’s fantastic.”



Functional testing of diaphragm prototypes that were created with 3D printed injection molds.

How does PolyJet compare to traditional methods for Whale?

Method	Time	Cost
CNC	20 days	$6,650
PolyJet	1 day	$850
SAVINGS	**19 days (95%)**	**$5,800 (87%)**

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