

AT A GLANCE

Company: Nimrod Racing™
URL: www.nimrod-racing.hu
Location: Budapest, Hungary
Industry: Specializes in designing and manufacturing R/C vehicle components.

Challenges

- To evolve from making metal parts to plastic parts
- To cut time to market in order to maintain competitiveness
- To achieve cost effective production of very low quantities

Solution

- The Eden250™ 3-D Printing System from Objet

Results

- Brought prototype fabrication in-house and reduced design-to-prototype time from months to just days
- Reduced typical product development cycle from seven to two months
- Able to produce high-quality, highly accurate functional parts made of plastic
- Able to cost effectively produce ultra-short-run, limited editions of parts
- Dramatically reduced the cost of error



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András Szász
 managing director,
 chief designer



R/C Car Parts Company Races to Production with Components Produced on an Objet 3-D Printer

Racing R/C vehicles is a popular hobby the world over, backed by a thriving industry of designers and manufacturers catering to hobbyists’ desires for great-looking and great-performing miniature vehicles. Whether for fun or competition, the operation of the R/C cars depends on a multitude of small parts that need to work reliably and smoothly under tough conditions.

Budapest firm Nimrod Racing™ started off as a technical office designing parts and assemblies for a variety of uses. However, with its emphasis on following and setting new standards in cutting edge design and product innovation, the company quickly evolved into an expert designer and manufacturer of R/C car components. Initially, Nimrod Racing depended on conventional 3-D milling, but as the market changed, it realized it needed to progress to 3-D printing.

“The ‘make everything lighter’ trend in automobile manufacturing is the same for R/C cars, so we needed to replace metal parts with plastic,” says Ádám Novák, Designing Engineer at Nimrod Racing. “Also, the parts are usually quite complex so 3D printing is faster than milling.” Objet’s unique 3-D printing technology and affordable Eden250 3D printer, which produces fully cured, highly detailed and accurate models and parts made of unique photopolymer materials, proved the perfect combination for Nimrod Racing. János Márton Szász, managing engineer explains: “We believe that Polyjet technology is the best 3-D printing technique. The resulting parts have superior mechanical properties so the parts can be used as parts of assemblies. There is no warping or shrinkage during the printing process, so we are able to achieve perfect dimensional stability.”

The benefits that Nimrod Racing has realized as a result of working with the Eden250 printer fall into the main categories of time, creativity, and cost – which together have helped the manufacturer improve its competitive position in the fast-paced market for R/C car parts. “We’re pushing the advantages of the Objet machine like nobody else before because our prototype parts are used as functional parts built into real R/C racing cars used on real racecourses.”

Compressed time to market

Prior to installing the Eden250 3-D printer, moving new products from design to sales was a lengthy and waste-heavy process. After the design phase, the project was sent to manufacturing and then it could take six or seven months until the complete prototypes were returned. Nimrod Racing is in the exclusive modeling business and hence needed only a few of each part. However, the company would order many more pieces than needed because only a few of the prototypes would meet its exacting standards for perfection. This resulted in a huge amount of waste products – and added cost.

Now that Nimrod Racing is able to manufacture the end parts in-house using its Eden250 3-D printer, time and product wastage is a thing of the past. “Today, we don’t need to consider long production phases; we can concentrate on our core activities of designing and engineering,” says András Szász managing director, chief designer. “We start sketching in the morning and we often have the final plans on our desk in the afternoon. Then we start printing and let the machine work unattended, so that the prototype is ready when the sun comes up – that’s how simple it is!”

“Our work became faster, and a lot more efficient, thanks to the quality and reliability of our Objet printer. It used to be that producing ultra-mini series, such as limited and numbered editions, was simply unaffordable. Today, we are able to manufacture small numbers of parts for competitive prices. We’re pleased to be gaining a real presence in the market for high-quality models, thanks to our Eden printer.”

More freedom to create

The half-year or longer wait for prototypes meant that Nimrod Racing’s supply time to customers was very slow, severely impacting its competitive power. And, working with outside suppliers carried its own costs in terms of the time and hard costs of finding the right suppliers and then managing them.

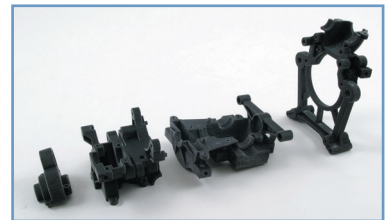
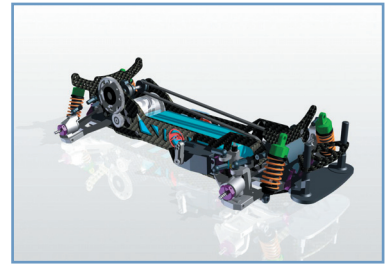
The picture looks quite different today. János Márton Szász, managing engineer, explains: “Thanks to our 3-D printer, we hold the production in our hands and don’t depend on any other parties. This means that the preparation of a new product is finished in less than two months! Our engineers don’t spend any time searching for and keeping in touch with suppliers. Instead they only focus on their most important work: designing parts and printing prototypes to create mini-series.”

Reduced cost of error

To build its brand, Nimrod Racing aimed to produce a wide variety of R/C wheels, which meant a different tool was needed for each rim and wheel. The high number of tools raised the primary costs and also carried a high cost of error as any malformation in the tool caused larger problems, particularly when it was not noticed early enough. “All in all, the production of tools was very expensive, error was unavoidable and so only large series were profitable,” says Ádám Novák, Designing Engineer.

Summarizing what Nimrod Racing has gained by choosing Objet technology for its 3-D printing needs, András Szász managing director, chief designer concluded: “Objet opened the door to the manufacturing of high-quality, yet cost effective, limited editions of parts. With the Eden250 printer, there’s no need to give tooling over to other engineering companies that specialize in the making of costly tools.”

“The Eden printing system is the quickest and most accurate ‘expert’ in our team because of its reliability, speed and cost. Objet was definitely the right choice for our company.”



About Objet Geometries

Objet Geometries, the photopolymer jetting pioneer, develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-dimensional printing solutions for rapid prototyping and rapid manufacturing.

The market-proven Eden line of systems is based on Objet’s patented office-friendly PolyJet™ technology. Objet’s FullCure® materials create accurate, clean, smooth and highly detailed 3-dimensional models, enabling the most complex 3-D models to be printed with exceptionally high quality, accuracy and speed.

Connex500™, Objet’s latest innovation, is based on Objet’s PolyJet Matrix™ technology, which offers jetting multiple model materials simultaneously. PolyJet Matrix jets Digital Materials™ creating composite materials which are fabricated on the fly.

Objet’s solutions enable manufacturers and industrial designers to reduce cost of product development cycles and dramatically shorten time-to-market of new products. Objet systems are in use by world leaders in many industries, such as automotive, electronics, toy, consumer goods, and footwear industries in North America, Europe, Asia, Australia and Japan.

Founded in 1998, Objet serves its growing worldwide customer base through offices in USA, Europe, China and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions.

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