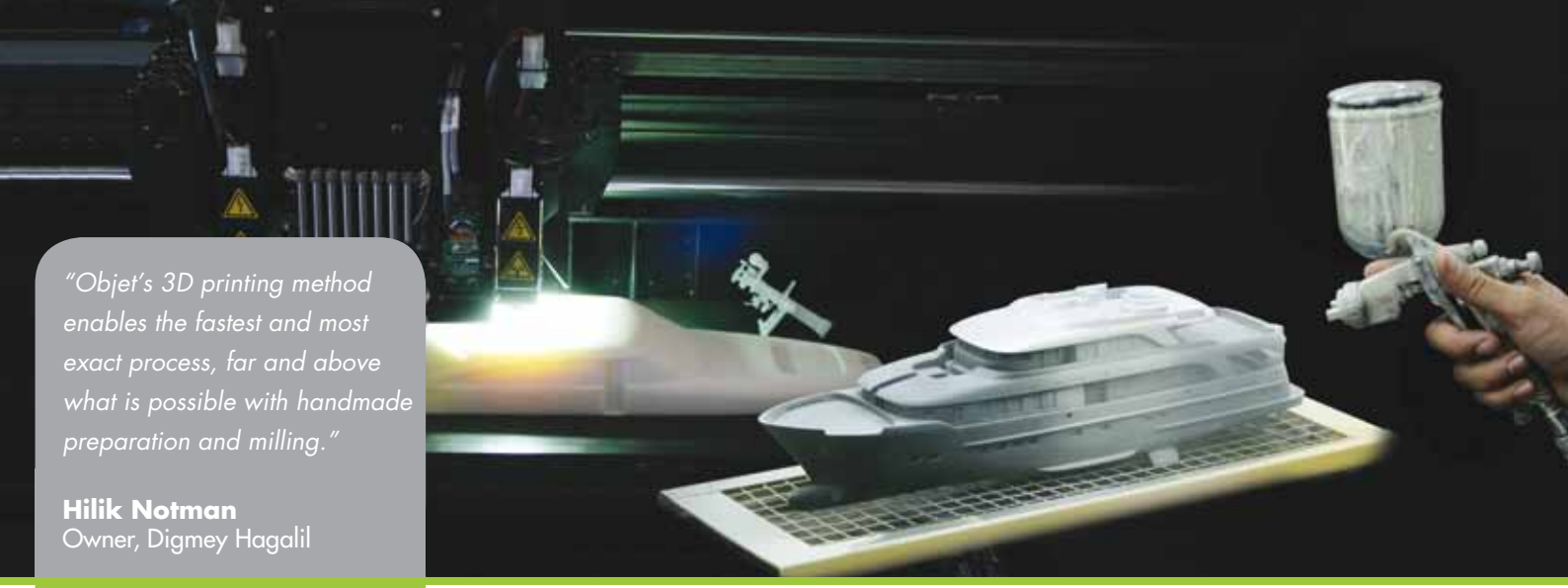

"Objet's 3D printing method enables the fastest and most exact process, far and above what is possible with handmade preparation and milling."

Hilik Notman
Owner, Digmey Hagalil

Case Study

Objet accuracy puts wind in the sales of yacht model building business

At a Glance

Company: Digmey Hagalil
URL: www.digmeyhagalil.co.il and www.nottman.com
Location: Israel
Industry: Yacht model creation (service bureau)

Challenges

- Create highly accurate, true-to reality scale models of yachts from 2D drawings
- Meet tough customer demands for "aesthetic perfection" in color and fit of parts

Solution

- Objet Connex™ multi-material and Objet Eden500V™ 3D Printing Systems

Results

- Fast, exact process from CAD to finished yacht model
- More accurate parts than is possible with alternative technologies
- Smooth surfaces and fine details that are easily painted for realistic-looking models
- Multi-material printing enables fast and accurate creation of complex parts such as windows inside their frames
- Ability to provide competitively priced offering while maintaining superior quality standards

Yacht models, like the real thing, have a special character, with the general form of the hull considered by many to be a perfect harmonic shape. And, like the full-size sea-faring vessels themselves, models of yachts are often inspiring, sometimes romantic, and always precisely formed.

To meet such high standards for quality, accuracy and precision, master yacht model builder Digmey Hagalil depends on 3D printing technology from Objet Geometries. The company, a service bureau established in 1990 and located in the north of Israel, specializes in building models of all kinds of yachts and ships for an international clientele. It also offers 3D printing and prototyping services for medical, industrial design, mechanical engineering and electronics applications.

For yacht model applications, Digmey Hagalil primarily produces the parts on its Objet Eden500™ 3D Printing System, which is based on Objet's core PolyJet™ Technology, and its top-of-the-line Objet Connex500™ 3D Printing System utilizing Objet's unique multi-material technology, PolyJet Matrix™. Apart from the hulls of larger models, which are milled on a CNC system, wooden floors and rails cut by laser, all the other parts are created to scale using Objet 3D printers. Smaller hulls and metal rails and other details that need nickel coating are produced using the Objet 3D printers.

The yacht owners, ship yards and entrepreneurs who commission the models, have exacting expectations for how the models must look – i.e. just like their full-size counterparts. Meeting their expectations requires precision parts that fit together without visible seams, realistic colors and visual effects, and robust construction that will stand up to years of display and handling. According to Hilik Notman, Digmey Hagalil's founder and owner, only Objet 3D printing technology is up to the challenge.

OBJET

Accuracy and speed make Objet the only choice

"The parts that I get are very accurate and the surface area is comparatively very good," Notman says. "Also, the time we save due to the fast printing speed of the Objet machines, and by being able to print two materials at once on the Objet Connex, is an important advantage. Without Objet, I would not be in this business. The competition is very tough and other technologies, which are slower and less accurate, are not worth considering."

Digmey HaGalil's extensive expertise in yacht model building is brought into play from the very first stages of every project. Usually the client provides photos of the actual ship and sometimes some basic drawings. Digmey Hagalil designs the models from scratch in SolidWorks, creates a 3D file according to the required scale, in most cases 1:50 or 1:70, and then prints, mills or cuts the individual parts.

> "Without Objet, I would not be in this business... Other technologies, which are slower and less accurate, are not worth considering."

For most of the parts printed using the Objet 3D printers, Digmey Hagalil uses FullCure® VeroGray, an opaque, rigid material. "VeroGray is a good material for these parts because it is highly stable and it is easy to paint over to recreate the colors of the actual ship," explains Notman. "FullCure720 is good for windows because it's transparent and we usually print windows with their frames, in VeroBlack, in a single build on the Objet Connex500."

Once all the parts are printed, they are glued together and the surfaces are polished so that after painting, the seams will be invisible. Primer is applied, and then the parts are painted with auto paints to faithfully recreate the colors of the ship or yacht. Stair and deck rails, and small details such as bridge features, door handles and the like are nickel-coated to create a look of shiny stainless steel.

ABOUT OBJET GEOMETRIES

Objet Geometries Ltd., the innovation leader in 3D printing for rapid prototyping and additive manufacturing, provides 3D printing systems that enable manufacturers and industrial designers to reduce cost of product development and dramatically shorten time-to-market of new products.

Objet's ultra-thin-layer, high-resolution 3D printing systems and materials utilize PolyJet™ polymer jetting technology, to print ultra-thin 16-micron layers. The market-proven Objet Eden™ line of 3D Printing Systems and the Objet Alaris™30 3D desktop printer are based on Objet's patented office-friendly PolyJet™ Technology. The Objet Connex™ family is based on Objet's PolyJet Matrix™ Technology, which jets multiple model materials simultaneously and creates composite Digital Materials™ on the fly. All Objet systems use Objet's FullCure® materials to create accurate, clean, smooth, and highly detailed 3D parts.

Objet systems are in use by world leaders in many industries, such as Education, Medical/Medical Devices & Dental, Consumer Electronics, Automotive, toys, 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, Mexico, Europe, Japan, China and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions. For more information, visit us at www.objet.com.

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