

OMAX Customer Spotlight

Titan Waterjet tackles highly customized cutting projects

A small business located in the rolling hills of southern Indiana and near Indiana University uses its versatile large-scale 6' x 20' OMAX® abrasive waterjet to create unique products for the U.S. Navy and other industries.

Titan Waterjet; a division of Hoffman Design Works, Inc. (a custom design and fabrication company) produces customized low-volume



A view of Titan Waterjet's shop with their 6' X 20' Omax® Fabricator.

components for Indiana's U.S. Naval base, NSWC Crane. Titan Waterjet also extends its waterjet cutting skills and capabilities beyond government contracts and industrial work to architectural jobs, trade show exhibits, interactive museum displays, and artwork. The owner, Drew Hoffman, and Titan Waterjet director, Lucia Bennett, combine their unique backgrounds (engineer and artist) to create a myriad of challenging design and technical projects.

After spending a number of years painstakingly performing metal-cutting with manual techniques using band-saws and jig-saws, Drew purchased his very own waterjet. He wanted a machine that could accommodate a wide range of materials and sizes for his diverse array of projects and customers. Their Omax® waterjet fulfills the needs of customers requiring custom design work, prototypes, and low-volume production work.

Titan Waterjet's machine is fully loaded with extras to tackle just about anything that comes its way. They have the OMAX Tilt-A-Jet® accessory to perform precision cuts with little or no draft angle on even the deepest cuts (up to 8") and the OMAX Terrain Follower® for additional precision on material with issues in flatness. And, of course, the enormous tank size—yes, bigger is indeed better!

The bulk of Titan Waterjet's work is for military applications. The Tilt-A-Jet is used routinely on thick materials such as steel and aluminum. Frequent projects include large steel fabrications utilizing complex hole-patterns in structures. "We're able to create accurately cut through-holes for hole threading. Without that feature, we would need to spend a vast amount of time drilling a preliminary hole for tapping. We are able to compress a process that once took sev-

eral days down to one," Drew said.

The Tilt-A-Jet's precision goes beyond the realm of military and industrial to create intricate, inter-locking structures used in art and architectural applications. Metals aren't the only materials being run through Titan Waterjet's busy shop—frequent materials are hardwoods and architectural-grade resin plastics panels. "Complex joinery in woods,



A hydraulic antenna tilt-stand for the U.S. Navy using waterjet cut 1/4", 1/2", 2 1/2" and 4" steel plate.

plastics and metals are a breeze using waterjet. I'm able to create items that would be nightmarish to cut if I was using typical woodworking equipment." Lucia said.

Since they do have a monster-size table for cutting, they are able to load thick chunks of 18-20' long Inconel for cutting. Without the Terrain Follower, "The process of cutting would be a complete headache since the super-alloy often



An interlocking table using tight kerf-widths and the OMAX Tilt-A-Jet®. Made from 3-Form® architectural recycled plastic and aluminum.

has great variations in flatness over the long length. The Terrain Follower has also been a dream when cutting thin materials such as stainless steel which often have a great deal of vertical movement due to their internal stresses.” Lucia exclaimed.

The advantage of having a lot of cutting space means being able to work on many small projects too. “Since we are a custom shop, we often need to quickly work on a variety of small parts from different materials and thicknesses. The ability to utilize all that lineal space is a time-saver to say the least. The Terrain Follower is also handy here—once it is set, I can jump to the next part without having to adjust Z-height. Totally awesome on a busy day!” says a thrilled Lucia.

The addition of abrasive waterjet cutting to the already vast array of fabrication abilities has changed the way they design many custom parts and equipment. An enthusiastic Drew said, “Everything we

design in-house is created in Solid-Edge, a 3D CAD program. Before we had a waterjet, our part geometries were often limited to hard rectilinear profiles lacking precision hole-patterns or something as simple as filleted corners. Now, nothing is too complex to design and to cut on the waterjet. Our whole approach to designing has been revolutionized because of our waterjet.”

Drew and Lucia’s innovative approach to custom design and fabrication incorporating waterjet cutting has changed the face of their business forever.



3” aluminum brackets for the U.S. Navy.

Titan Waterjet

Contacts: Drew Hoffman and Lucia Bennett

Location: Bloomington, IN

Specializes in: Custom design and custom fabrication

Founded: 2008

Website: www.titanwaterjet.com



Above: A computer desk using box-joinery created on their waterjet. Made from Baltic Birch and aluminum.

Below: The Titan Waterjet all waterjet cut trade-show exhibit from the 2009 Fabtech Show. It uses aluminum, wood, polycarbonate, acrylic, 3-Form®, copper mesh, and Corian®.

