

Autodesk Pier 9: Waterjet Finds its Groove in Maker Culture



One might describe software developer Autodesk's Workshop at Pier 9 as a traditional communal workspace. But in reality, it is a highly advanced maker space where artists, engineers, designers, architects and others network and share resources and knowledge that blur the lines between art and manufacturing. It is here that an OMAX® 60120 JetMachining® Center helps foster innovative designs and transform how things are made.

Up to 20 full-time artists, dubbed Autodesk Artists in Residence (AIR), work at the Workshop in five-month intervals seeking to push the boundaries of both Autodesk software and production-quality machine tools in efforts to master what is often thought impossible.

The Workshop, located on Pier 9 in San Francisco, houses individual shop areas for fabrication (welding and forming), woodworking, metalworking (CNC machining), electronics, laser cutting and 3D printing. It also has a commercial test kitchen, industrial sewing center and other specialty project areas.



The Workshop boasts an impressive array of equipment – manual and CNC turning and milling machines, drill presses and routers, a multi-tasking (turning and milling) machine, a turning center with live tooling in addition to the OMAX abrasive waterjet cutting machine.

The 60120 JetMachining Center has proven to be a valuable piece in the facility's gallery of manufacturing processes. It offers high accuracy of motion and easily accommodates components measuring up to 5 feet by 10 feet. The machine is equipped with OMAX's intuitive IntelliMAX® Software Suite; its powerful, highly efficient direct-drive EnduroMAX® Pump technology; and the company's A-Jet® multi-axis cutting head with a 0 to 60-degree range.





Artists must complete mandatory general workshop safety and appropriate training for each machine or piece of equipment they intend to use. Training classes for the OMAX are in high demand and have been full every month. Daniel Vidakovich, Workshop CNC Shop Lead, and Martin Horn, the Lead Workshop Instructor that teaches the waterjet class, wrote a basic training manual for the waterjet. It is only nine pages – reflective, they said, of how short the learning curve is with the OMAX machine.

“The workflow of the OMAX is probably the simplest of CNC tools,” commented Horn. “In four hours, we can train a person to a level where they can construct a cutting path, validate that path, fixture the material and make a cut. And key to us being able to do so is the simple, straightforward OMAX software.”

With the OMAX, Workshop users cut mostly aluminum and sheet metal in thicknesses that range from 0.063” to 3”, but they have pushed the limits with 2”- thick felt, glass, concrete, cardboard and even a few epoxy resin sculptures.

The machine lets them quickly produce multiple iterations of a CAD file and, to a certain degree, determine real-world manufacturability of their particular designs/projects.

Examples of such instances and of the connection between software and hardware are a rocking chair made of wood and metal as well as a three-legged, all-aluminum stool.

Embedded within the rocking chair’s wood components are thin aluminum spline pieces cut on the OMAX that join the various components and provide strength. The chair represents a meshing of art and traditional craftsmanship achieved with waterjet cutting.

The stool showcases simple, yet extremely innovative design elements as well as new manufacturing/assembly methods. Its creator used the OMAX to create the stool’s special one-of-kind “oblique tenon” joints. The stool’s components all self-align during assembly, and their close-tolerance fit ups would have been impossible to produce without the OMAX and it’s A-Jet multi-axis cutting head.

The ease of use and flexibility of the 60120 make it one of the most used machines in the metal shop. Rarely does the machine cut the same part twice. With many different artists working on many different projects, every job is a new and requires a different tool path. As these maker culture artists on Pier 9 continue to explore new designs and innovations, it’s clear the OMAX 60120 will be instrumental in helping them bring their ideas to reality.



AUTODESK PIER 9
LOCATION: San Francisco, CA
FOUNDED: 2012
OWNER: Autodesk
WEBSITE: www.instructables.com
SPECIALIZES IN: Innovative maker space covering everything from industrial sewing to CNC machining and 3D printing

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