

# AZ METALWORKER

Arizona, Nevada, and New Mexico Edition

**DaVia Waterjet Cuts the Fastest Parts  
in the Southwest!**





## DAVIA OWNERS PAM AND FAMILY OWN THE FASTEST JET IN THE VALLEY!

It's true. DaVia Waterjet, a woman-owned small business, just purchased the fastest waterjet in the valley!

DaVia Waterjet is a Women-Owned, family-run small business that was established in 2005 by the Davis family. Pam and Daniel Davis invested their retirement savings to start the company with the assistance of their sons, Joseph and Thomas. Today, the company is owned by all 4 family members, with Pam the majority owner and is registered with Central Contractor Registration (CCR).

Thomas was a quick learner who graduated from high school early, and was an experienced machinist at the age of 23. Joseph, the older son, worked in the insurance business, and soon joined the family business. Both were anxious to get out and start making a mark for themselves.

Thomas' first position in a machine shop was as a temporary assembly worker. When an opening came up in the paint and powder coating division, Thomas pressed his owners to move him into this position. "He wouldn't take no for an answer", Pam said, "and he got the position."

It wasn't long before Thomas advanced himself up to the fabrication department, where he quickly learned the Mitsubishi laser machine, CAD and programming.

Thomas taught himself how to design parts with the AutoCAD system due to the need of his employer. When the company's laser machine suffered a catastrophic failure, and the company wasn't willing to spend the money to replace it, Thomas knew it was time to set his sights on his own destiny and his success into his own hands, so he laid out the plan.



"Daniel and I had government jobs working for other people, and we wanted the opportunity for our kids so they could be their own boss," Pam said. "Thomas knew there was great potential in the waterjet industry after witnessing his previous employers subcontract a substantial amount of waterjet work."

Before starting the business, Thomas contacted various waterjet manufacturers, and he was put in touch with Glen Zachman of North South Machinery. They met at Thomas's house several times before moving forward with their first waterjet purchase.

Glen met the whole Davis family at Westec in 2005, where all the family members saw a Waterjet first-hand. "Before we left the show," Pam said, "I told Glen we were ready to make our first waterjet purchase."

The family selected the name "DaVia Waterjet," Pam said, "Because it was Daniel's original family name when his family came over from Italy. The name was Americanized to Davis, but we wanted to honor our history."

The company found a home for their new



waterjet in a 5000 square foot facility in Phoenix. Daniel's job was finding customers for the new business, Pam's was running the front office and Thomas, as the experienced machinist, was to program and waterjet the parts.

Business came to DaVia Waterjet quickly, and within a year, the company purchased its second waterjet to keep up with demand. Thomas and Joe worked split shifts so that parts could be turned very quickly for their customers. With the overlap of 2 operators, the waterjet was getting consistently 20 hours of run time per day, the family said.

"We were successful early on," Thomas said, "Because we could turn parts faster than other waterjet companies due to our dedication and our dual pump setup. That continues to be our mantra today."

A huge job triggered Thomas to think about how to capture this large account. "The water jets we owned were really good for the first nearly five years of our business, but they were now not the cutting edge of technology we needed to jump ahead of our competition. As well, the machines required substantial time for maintaining the dual pump."

"While we were prototyping a job for one of our customers, Glen offered to do a time study on the same parts using their 90k psi KMT pump on the Mitsubishi DX612," Thomas said. "I had a hard time believing the time savings and almost half the garnet usage." Thomas flew out to Mitsubishi's facility in California during the Mitsubishi/ North-South Open House to witness the cut himself.

Glen said, "I knew Thomas wanted some very technical information specific to the job he was working on, and how the parts could be produced, and the maintenance on the Mitsubishi DX612. I knew that he wanted to see in detail the machine and 90,000 psi KMT pump in action for himself. When Thomas came to the Open House, I set him up with Doug Maywald, Mitsubishi application engineer. I wanted him to ask Doug all the tough questions without my influence and show him first hand all the features and newest technology."

"When I left Mitsubishi's facility that day," Thomas said, "I was convinced to buy, just the garnet usage alone was huge, not to mention doubling my cutting speeds. It exceeded my dual pump system by far and that was what I need to secure the large production contracts. If I could have taken the machine home with me, I would have!"

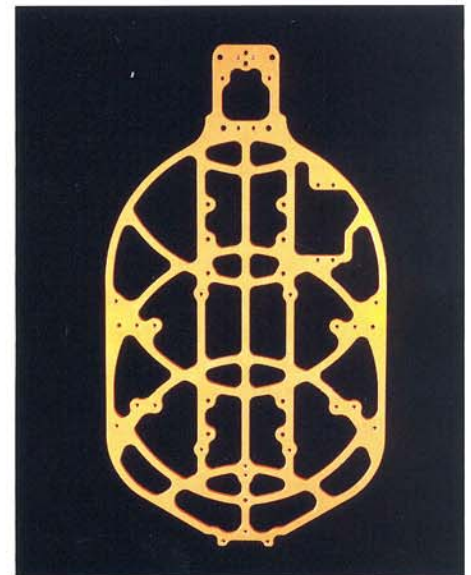
The company soon integrated a Mitsubishi waterjet into its operations. The machine travels are 7 feet by 13 feet, and features a 20-inch I-beam construction, dual 40-millimeter ball screws, and a stainless-steel work tank that is completely isolated from the machine frame for a higher accuracies. The unit is controlled by the latest Mitsubishi M700

series CNC control, featuring Metamation advanced programming capabilities, a 15-inch waterproof LCD screen, and a true CNC controller that most machine shops use daily.

Mitsubishi gantry-style construction delivers a highly rugged design, over built for the application which allows for higher rapid speeds, accuracy, and cutting speeds. The motion system travels the extra rigid box constructed x-axis bridge on a set of linear motion guides driven by dual Mitsubishi Brushless AC Servo Motors and double anchored ball screws for unmatched positioning accuracy, all the machines are ball barred and laser calibrated.

The Mitsubishi DX Series features an Ultra-high pressure, 60-horsepower KMT PRO Series pump with 90k psi at the nozzle, not the pump for the fastest most efficient cutting. Standard on Mitsubishi's is the abrasive removal system which uses a 300-gallon-per-minute water circulating system in the work tank that suspends the exhausted abrasive and pumps it through a cyclone system that separates the water and returns it back to the tank. The used abrasive is collected in a hopper for easy disposal and minimal maintenance is required.

Mitsubishi Water jet's ITC (Intelligent Taper Control) system analyzes the cut and provides taper control automatically without the need for reducing speed. The technology allows for tilt and rotation of the jet to maintain accurate wall straightness with maximum speed. It uses a rigid mechanical tilt to compensate for the jet getting wider



as it exits the focus tube, maintaining stream velocity and faster production of final parts.

“The cutting speeds blew our current dual pump machines away,” Thomas said. “And where we could previously rapid traverse at 150” per minute, the Mitsubishi rapids at almost 800” per minute.”

“The software on the Mitsubishi water jets is much more powerful,” Thomas said. “Where our current water jets use proprietary software, the Mitsubishi waterjets use Metamation software, which is very common in the sheet metal business. The software on our existing waterjets was very easy to use, but with ease of use, it offered little in extended features. We’ve really outgrown this software, and needed a software package that was much more comprehensive. In fact, we needed the extended features that are standard on the Mitsubishi.”

“We’ve gone from handling parts that were up to 48” x 96” to parts as large as 84” x 156”, and we’ve cut our cycle time on our first job from 9 hours to 5 hours,” Thomas said. “I still can’t get over,” he continued, “that our garnet is reduced by about half.”

Glen said, “The bigger the job, the more customers press you for lower costs. DaVia Waterjet can now handle large, production volume jobs very cost effectively for their customers. Nobody in the Valley can cut parts faster.”

Pam said, “When you add up the total cost of our previous machine, with the dual pump, we paid just about the same price for our Mitsubishi DX612 with KMT 90k psi pump as we did for our previous machine. Not to mention the low interest rate Mitsubishi factory financing provides. It’s just outstanding for DaVia Waterjet, and for our customers!”

Maintenance is just part of owning any waterjet. Thomas says that the Mitsubishi waterjet requires much less maintenance time. “With its automatic lubrication, you aren’t greasing the ball screws. We were doing this about twice a year with our other waterjets, simply because we knew that if garnet got into the ball screws, it could wreck them.” He continued, “The Mitsubishi flushes the garnet out should it get into the double lined bellows. This is a real time saver for us, and helps to ensure that our waterjet will last and maintain its accuracies.”

“While the Mitsubishi DX612 has roughly the same footprint as our other waterjet, it has a lower profile,” Thomas said. “This makes it much easier to load and unload parts,” he continued, “and this is a great feature for our backs!”

The installation process was relatively seamless, the DaVia team said. Mitsubishi sent 2 installers, one local and one from California. The machine was set-up, leveled and running in one day. Glen explained that other waterjets come in pieces and are assembled on-site. The Mitsubishi comes in nearly fully assembled, and makes installation quick and easy.

For Thomas, there was almost no learning curve for operating the Mitsubishi DX612. “I ran Mitsubishi lasers for years,” he said, “and the controls were nearly identical.”

For the other family members, Mitsubishi provided a 5 day onsite training course. “The training really only required a day of going over the controls,” Thomas said, “and the remainder of the training was spent on improving the manufacturing of our parts versus how our older



machinery worked.”

“The Mitsubishi and North-South team have just been outstanding,” Thomas said, “and we can’t say enough about North-South’s Glen Zachman. He has been an integral part of the DaVia Waterjet business since we opened. Glen not only supports us with our machine tools, but he helps us with being more efficient, helps with marketing material and business

planning. Glen is really a great extension of the DaVia family business.”

For more information on DaVia Waterjet, a woman-owned, family ran small business with the fastest waterjet in the valley, contact them at 602-442-4452 or go to their website at [www.daviawaterjet.com](http://www.daviawaterjet.com).

For more information on Mitsubishi waterjets, call North-South Machinery at 602-391-4696 or go to their website at [www.northsouthmachinery.com](http://www.northsouthmachinery.com) and [www.mitsubishi-world.com](http://www.mitsubishi-world.com)

### *Why the Mitsubishi DX612 & KMT's 90K PSI?*

- Mitsubishi brand name recognized as a world leader entered into the waterjet market to bring the Waterjet industry to the next level of accuracy, speed and new innovations.
- Mitsubishi expertise of machine tool building and the knowledge of metal cutting to the Waterjet market.
- KMT pumps are a proven leader in building Ultra high pressure with proven reliability and performance. Built in America.
- Designed for aerospace customers that demand a higher degree of accuracy, reliability and control in Waterjet technology.
- Precise control of .800ths rapid traverse speeds with unrivaled acceleration and deceleration with axis laser compensation for highest degree of accuracies.