BY JOE MORRIS, BARTON INTERNATIONAL

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MarZee Cutting Services Inc. is consistently able to obtain better parts with its Omax waterjet and Barton garnet abrasive.

HIGH-PERFORMANCE BLAST

Manufacturer finds the right abrasive is a key ingredient to cutting better parts

Cold cutting sheet metal and plate with a waterjet continues to offer manufacturers a cost-efficient, multifaceted tool for high-precision processing without distortion, deformation or structural changes to the material. Selecting the right abrasive is a crucial step to meeting edge quality specifications and surface finish requirements.

For MarZee Cutting Services Inc., waterjet cutting is the company's bread and butter. "It's a versatile cutting process," says Ed Wenz, president and owner of MarZee. "With it, you can put in a thick piece of steel and cut out a flange. Then you can put in a piece of rubber and with a couple clicks of a mouse, cut a gasket for the flange. And the changeover from one material to another is almost instantaneous. You can't do that with a laser due to the heat."

The Phoenix-based, family owned company has been providing high-precision cutting services since 1998. MarZee specializes in parts production and prototyping for industries that include aerospace, architectural and defense as well as applications for machine shops and environmental design and signage.

CUTTING BETTER PARTS

Whether it is steel plate structural components, aluminum aerospace parts, blanks, rubber gaskets or terrazzo floor tiles, MarZee has built its business on what Wenz calls "cutting a better part." In 2021, the company doubled its size to a 20,000-sq.-ft. facility to expand its waterjet cutting business. The company added three twin Omax 80X waterjets [160-in. cuts] and an Omax fabricator with an 80-in. by 240-in. cutting table. Recently, MarZee added two fiber laser cutting machines for ultra-precision cutting of

steel, copper, aluminum and other metals up to 1 in. thick.

MarZee's Omax waterjets are set to achieve a Quality 2 or 3 cut. "I've played around with recommended cutting speeds so that I can put out a better product in terms of edge quality without taking more time," Wenz says. "I've been told that my Quality 2 cuts often look like 3s."

Aside from careful attention to parameters such as cutting speeds, Wenz points to

MarZee saved material handling time and labor by shifting from 55-lb. bags to 2,200-lb. bulk containers and a Barton Abrasive Transfer Hopper with a 4,400-lb. capacity.

Precision cutting of metal products up to 1.5 in. thick represents over 80 percent of MarZee's current waterjet cutting volume.

garnet abrasive as a key ingredient to producing a better part.

"Our original Omax machine came equipped with Barton's HPA 80 mesh garnet abrasive, and I have always relied on it," he says. "This garnet product—combined with well-maintained equipment and experienced operators—does a consistent job maintaining tolerances down to 0.005 in. when needed. I've never had a problem cutting to close tolerances with HPA 80. I find I can hit nearly all my tolerances with it."

For select projects, MarZee runs Barton HPX 120 in a mini cutting head and achieves a tolerance of 0.003 in.

"The key to consistent parts is simple," Wenz says. "Stick to what works." MarZee's recipe for waterjet equipment, operator skills and garnet abrasives is helping the company meet a growing demand for steel components for electrical substations.

"I'm currently 75 percent of the way through a job that calls for 75 tons of material, 1,200-plus hours of cutting work and 58 tons of Barton HPA 80 garnet," Wenz says. "With power demand rising in our area, we're making a lot of steel parts for electrical substations, like structural baseplates. Virtually all are square, with holes for mounting points or bolts. After we cut the material and it is fabricated with welding and other processes, it is then put through a galvanizing process. The plates are joined to support columns and I-beams on which transformers and switching equipment are mounted."

> **"I've never had a problem cutting to close tolerances with HPA 80 [garnet]."**
>
> **Ed Wenz**, MarZee Cutting Services Inc.

CLEAN AND DUST-FREE

Consistency, along with cleanliness and uniform material grading and screening, are hallmarks of Barton garnet products. Headquartered in Glens Falls, New York, Barton International is also family-owned and has led the industry in high-quality garnet abrasives for more than seven generations.

"When I load Barton garnet into a hopper, I find that it is always very clean and dust-free," says Wenz. "That's important, because people don't need to be breathing that dust. I've found that when I ventured away from Barton, like when another supplier sent a freebie to try their garnet, the product was dusty. For me, the dust is a big no-no. The consistent, high quality of Barton garnet products—and the fact that the company has always been fair on pricing—is why I've stuck with Barton. And since the HPA 80 is the majority of what we have used for years, we can gain efficiencies by purchasing in bulk."

Ordering the HPA garnet in bulk 2,200 lb. bags, MarZee shifted from handling small bags [55 lbs.] and upgraded its material handling system with a Barton Abrasive Transfer Hopper. Now, instead of loading pressure hoppers with a series of small bags, MarZee staff simply load two bulk bags, totaling 4,400 lbs. of garnet, into a large-capacity transfer hopper.

Garnet is then transferred to 40-lb. buckets for filling the pressure hoppers. The process is not only faster and easier, but it also eliminates the risk of introducing any traces of paper packaging into the narrow mixing chambers on the cutting heads.

While Wenz can't predict what jobs his team will complete next month, he says he is certain about the capability of MarZee's processes, equipment and abrasive materials to produce superior cutting results. FFJ

Barton International, 518/798-5462, barton.com.

MarZee Cutting Services Inc., 602/269-5801, marzee.com.

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