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REMOVE & TRANSFER

Labor-saving tools help machinery users avoid downtime, keep operations clean and eliminate waste

Spent garnet abrasive must be removed from a waterjet cutting machine on a regular basis. "Your machine will definitely perform better when the tank is not full," says Stephen Podnorszki, director of waterjet parts at Barton International, Glens Falls, New York, which produces garnet and waterjet components. "The more often you remove the abrasive from the waterjet, the easier it is. If you let the tank fill up and leave the abrasive in there for a long time, it does get harder to remove."

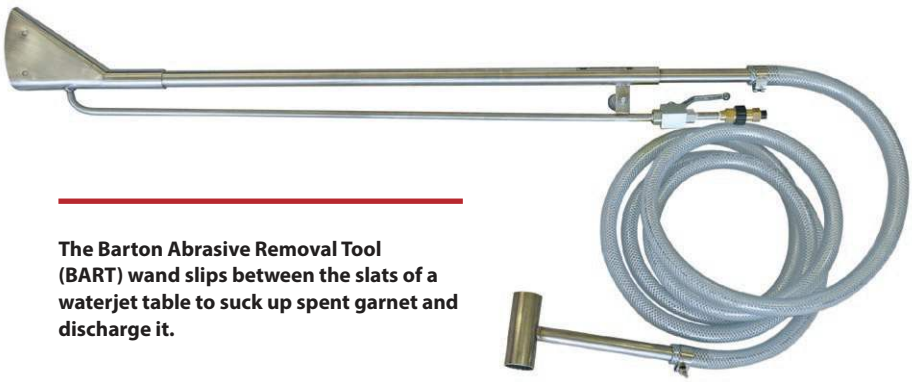
He adds that when abrasive builds up until it is just below the slats of a waterjet table, abrasive gets churned while cutting occurs. "It's probably going to bubble up and get abrasive all over your part."

Keeping the tank close to empty is ideal, but Podnorszki says abrasive accumulating to the bottom side of the slats does occur. "That's not the norm, but I have seen it."

Some facilities periodically shut down their waterjet machine to enable workers to manually shovel out the garnet or bring in a vacuum truck service to clean the tank. In addition to the labor or service costs, the operation loses production time.

One option to keep a waterjet tank clean and clear of spent abrasive without shutting the machine down is an automated abrasive removal system that is integrated into the equipment. The cost for that type of system can be as high as tens of thousands of dollars, Podnorszki estimates.

The garnet abrasive transfer hopper eliminates the time and fatigue of handling 55-lb. bags of garnet. Right: Connecting pins help hold the hopper in the stand even when bumped.



The Barton Abrasive Removal Tool (BART) wand slips between the slats of a waterjet table to suck up spent garnet and discharge it.

LOW-COST REMOVAL

Barton, however, offers the Barton Abrasive Removal Tool (BART) for about $3,000, he notes. "It's the lowest cost garnet removal option available."

The portable tool can be used to remove garnet from multiple waterjet tables and can function while the equipment is running, he explains. "Customers can be cutting on one side of the table while removing abrasive on the other side."

The BART wand slips between the slats of the waterjet table, sucks up spent abrasive and discharges it. Although there is no standard width between table slats, "I never had a case with the BART where it wouldn't fit down between the slats of a customer's machine," according to Podnorszki.

The tool requires a 2.5- to 3-gpm, 2,500- to 3,000-psi pressure washer, which does not come in contact with the spent abrasive as it is discharged through the hose, Barton reports. There are no moving parts, pumps or filters, and only a single wear part—the jet nozzle for the pressure washer. Barton recommends that an end user change the jet nozzle after 40 to 50 hours of use, Podnorszki notes.

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Barton does not sell pressure washers, but many customers already own a pressure washer for other applications.

Many BART customers even use the tool on waterjet machines with an automated abrasive removal system, Podnorszki says, to remove garnet from difficult-to-reach places, such as corners or toward the back of the table. "There are always areas that get missed with an integrated system."

Occasionally, a waterjet machine needs to be shut down and have grates lifted off to remove metal pieces and other objects that fall into the tank during cutting. "There are no garnet removal systems that remove metal from your tank unless they're really small pieces," Podnorszki notes.

Although BART can be used intermittently on multiple waterjets, some customers purchase more than one tool. "But if the machines are located close to each other, there's no reason to buy two units."

A typical waterjet consumes about a pound of abrasive per minute of operation, he says. "You're talking 60 pounds an hour. It definitely adds up."

COLLECTION OPTIONS

To collect spent abrasive for disposal or recycling, Barton offers several accessories: a portable diffuser, a tip hopper and a 55-gallon drum with diffuser. According to Barton, its portable diffuser helps suspended solids settle quickly in the collection vessel, so water returning to the table is free of abrasive.

The tip hopper is a convenient method of collecting and transporting spent abrasive. Podnorszki says that if customers do not have a barrel tipper onsite and are simply looking to collect the garnet and then dump it into a roll-off dumpster, they usually opt for the tip hopper. "A lot of our customers that buy the

tip hopper actually use it for other applications in their shop as well."

The 55-gallon drum with diffuser helps suspended abrasive solids settle quickly in the collection vessel, so water returned to the table is abrasive-free.

The BART tip hopper is a convenient accessory to collect and transport spent abrasive.

PREVENTING WASTE

To increase the efficiency of waterjet operations, Podnorszki says Barton also offers the garnet abrasive transfer hopper. The product is designed to eliminate time and fatigue from having personnel handle 55-lb. bags of garnet; reduce waste by avoiding the disposal of paper bags; and improve housekeeping by minimizing spillage from emptying bags into a standard hopper.

Designed for use with bulk bags of garnet, the hopper has a capacity of 4,400 lbs. The stand can be placed over a standard 6-cu.-ft. abrasive delivery pot with the hopper securely attached on top.

Podnorszki explains that a waterjet abrasive feed system uses a pressure pot, which is like pots used in sandblasting. A typical waterjet pressure pot holds about 600 lbs. of abrasive. When using 55-lb. bags of garnet, a shop would need to periodically shut down the machine to manually load bags into the pressure pot.

"You always run the risk while you're doing that of getting a small piece of paper from the bag in the pressure pot," he says, "which could clog the system."

If that occurs, Podnorszki adds, the operator must empty the entire pot to remove the clog, which can take several hours. When using the transfer hopper, customers use either a 2,200- or 4,400-lb. bulk bag made from synthetic fiber.

The stand, which measures 45 in. long by 45 in. wide by 59 in. high, is available for use with the hopper, which measures 45 in. long by 45 in. wide by 68 in. high. The hopper comes with anchor bolts and connecting pins, which holds the hopper in the stand even when bumped, such as by a forklift. **FFJ**

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