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PUNCHING

PAST MEETS PRESENT

By Lisa Rummler

September 2010 - In the course of any equipment's life, the opportunity for a company to upgrade it typically arises. For those businesses that opt to change equipment, they must decide whether to try something new or go with an improved model from the same manufacturer.
Thomas Industries Inc., Wabasha, Minn., chose to do the latter with its punch and die grinder from DCM Tech Corp., Winona, Minn. The company purchased its first PDG more than a decade ago and upgraded to a newer model in 2008, says Dan Prokosch, manufacturing engineer at Thomas Industries.

"The original purchase was prompted by the speed and consistency over a surface-grinder method, and the coolant also reduced the chance of tool 'burning' to nearly impossible," he says. "We upgraded in 2008 because of the newer features."

These include higher accuracy of the drive increments, which reduces wheel wear, and a more user-friendly control, says Prokosch.

Thomas Industries uses its PDG for thin turret punch and die sharpening and end-prepping shafts and pipe.

The company started in 1985 in a building the size of a garage with one turret and one press brake. It has grown a great deal over the years, now occupying a 58,000-sq.-ft. facility with seven turrets, eight press brakes, one laser, two punch presses, two CNC tube benders and a full welding department.

"We fabricate anything from little brackets to flat panels to fully welded battery cabinets," says Prokosch. "We also carry our own line of UL-approved electrical enclosures."

Increased efficiency

In its early days, Thomas Industries used a surface grinder and fixtures, like many other shops, but it became a hassle getting tools available and keeping them sharp. This created myriad challenges, but the PDG helped solve them.

"By eliminating the surface grinder, we were also able to eliminate tool 'burning,'" says Prokosch. "Operators under pressure to get a job out would simply run dull tooling or sharpen the tool vigorously and change the temper of the tool steel. In turn, the tools were not lasting near the hits they should.

"With the PDG, the operators have the time to sharpen the tools during a setup because they can set it, turn on the auto feed and continue with the rest of the setup while that tool is being sharpened. Once the process is complete, the head automatically rises off the tool, and your tool is ready to go."

In addition to tooling, Thomas Industries uses the PDG for certain unusual jobs that occasionally come the company's way.

"The PDG was basically designed for turret tooling, which is punch and dies, and that's what we use it for 99 percent of the time," says Prokosch. "But once in a while, we get an odd punch or a shaft we just [have] got to clean up the end on. So we just put it in there and prep it."

Running the gamut

DCM Tech has been building, selling and servicing grinders for 35 years to customers around the world. Accordingly, the PDG is based on a machine design that's more than 30 years old.

About 12 years ago, DCM Tech came up with a fixture design for the machine to hold different styles of turret press tools, says Mike Anderson, product manager at DCM Tech.

"We've taken a proven machine design and then made special fixturing to go with the machine," he says. "This fixturing includes three-jaw chuck and a permanent magnet chuck that allows you to hold pretty much any turret tool. It also allows you to hold tooling for progressives and punch press tools. It's a versatile machine as far as what sort of tools you can sharpen on it."

Additionally, the PDG has automatic feed, which allows operators to walk away from the machine after it is set up and placed into motion.

"In one scenario, customers will have a grinder right at the press, so the press operator can now run the press and sharpen his tools," says Anderson. "In another scenario, in larger shops, this machine might go into a tool crib, where a person who is in charge of tools can have the machine running while he's checking tools in, putting them away and checking them out.

"So in both scenarios, [the machine] lends itself to maximizing the work of the person running it due to the automatic feature."

The PDG runs a 6-in.-diameter CBN grinding wheel that is formulated for hard tool steels. The wheel is self-dressing, and Anderson says this further underscores the PDG's ease of use.

"The operator is not required to know when to dress the wheel or how to dress the wheel because it doesn't require that process to maintain the abrasive, so it's one less thing for the operator to be aware of and know how to do," he says. "It's a simple operation overall."

Other advantages

The PDG is a wet grinder, which keeps operators from burning tools, thereby extending the longevity of tool steel, says Anderson.

"Burning the tools can affect the metallurgy in a way that it becomes soft or brittle," he says. "In either case, it affects how well the tool holds its edge. And that is the important thing: to maintain the edge on the tool."

Another critical component for the PDG is its quick grind time. It takes an operator no more than five minutes to load and unload a tool from the machine, says Anderson.

"You can get a lot of tools ground in a short time because of the rotary action of the machine," he says. "By being quick, you're getting the efficiency of your labor. You're also able to process the tools more quickly, so there's incentive for the operators to do the grinding. By other methods, it can take quite a bit longer, and they may not have the time it takes to sharpen the tools because of their production schedules."

Operators also have an incentive to use the PDG to optimize part quality, which stems from consistently sharp tools, Anderson says.

"A dull tool will create a burr on the part, and the burr factor is diminished quite a bit by punching the material with a sharp tool," he says. "We've had some customers report reduction or elimination of deburring processes because they were able to maintain tools more regularly. It's a residual effect that's not as obvious, but in cases where people are having to deburr, they can generate more labor savings in this area by having consistently sharpened tools." **FFJ**