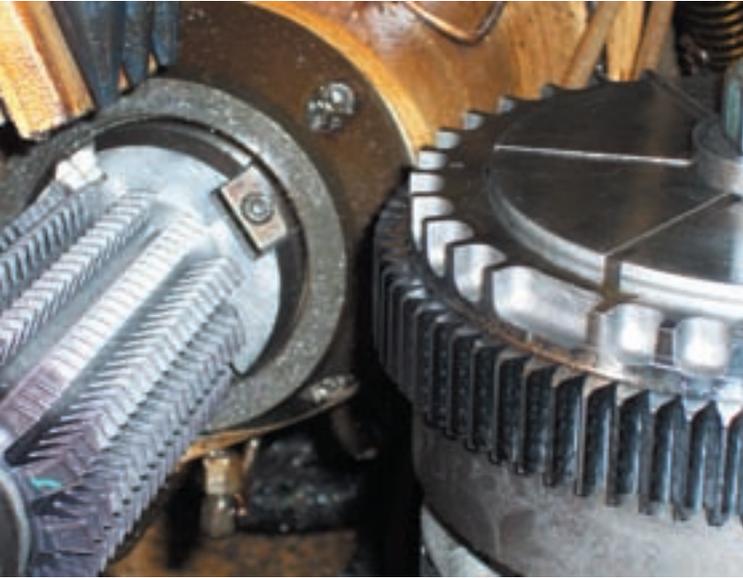


United Gear & Assembly

INCREASES CAPACITY THROUGH DRY HOBGING



United Gear & Assembly Inc. (UGA) of Hudson, WI, was running at or near full capacity in a number of manufacturing cells, but demand for its engine timing and transmission gears was on the rise. The company needed a way to increase manufacturing capacity.

For the past year, UGA has been converting those manufacturing cells from traditional hobbing with cutting fluid to dry hobbing cells, resulting in substantially decreased cycle times.

“The main reason we do it is to improve our throughput,” says Markus Bieber, director of sales and marketing. “Dry hobbing allows us to cut our cycle time roughly in half, so it basically allows us to double the throughput on each machine.”

UGA uses Mitsubishi GE15A and GE20A hobbing machines. For some of its manufacturing cells, the company purchased new equipment. In other cases, it didn’t have to. “We were able to take some of our Mitsubishi hobbors and convert those from wet hobbing to dry hobbing,” Bieber says.

In the past year, UGA has completed the conversion to dry hobbing on about a dozen manufacturing cells.

Cutting tools for dry hobbing are more expensive than the cutting tools UGA used previously, Bieber says, because of the different coatings required on them. “But it’s not as much as you would think.” The hobs being used in the dry cutting cells are about 15% more expensive than the old hobs, Bieber says. But that additional cost is outweighed by the additional productivity the company is able to achieve.

Some of the costs associated with the tooling are also offset in other areas. By eliminating cutting fluids, there are reduced costs in areas such as parts washing and facility maintenance.

Changing to dry hobbing has required relatively little change on the part of the company, Bieber says. No retraining of employees was necessary. Moreover, the dry manufacturing cells have been extremely well received by the company’s shop floor employees.

“These are some of the sought-after cells,” Bieber says. “Everybody wants to be moved to those cells.”

The reason the dry cells are so popular is because, without cutting fluids, the operation is much simpler now, Bieber says. “When you’ve got a hobbing operation, the operator generally has to take the part out and blow the oil off the part before he puts it into the next operation. That’s eliminated with dry hobbing.”

Also, with dry hobbing, most of the heat generated by cutting the part is carried away with the chips, so the parts can be handled immediately after cutting, Bieber says.

Removing cutting fluids from the operation can have health and safety benefits. “Sometimes employees have reactions to the cutting fluids. You’re taking that out of the equation,” Bieber says.

Switching to dry hobbing has had no effect on the quality of the company's products, Bieber says. He adds that dry hobbing actually allows for higher quality to be produced, but only if you reduce machine feed rates, and that would remove some of the benefits UGA sought in productivity.

But even at double the throughput, the quality levels have been maintained, Bieber says.

However, he adds that switching to dry hobbing probably isn't for everybody. A number of the manufacturing cells at UGA aren't even likely candidates.

"Dry hobbing is typically better for finer pitch gears," he says. "Really coarse-pitch gears, it doesn't work as well on."

Also, Bieber adds, because of the equipment and tooling costs, dry hobbing is somewhat volume-sensitive. "A shop that runs a lot of prototypes or low-volume service parts isn't going to see the benefit as much."

Some of the manufacturing cells at UGA that won't be converted are those that are dedicated to low-volume service parts.

Another important factor to consider is the type of equipment available. UGA was able to convert some of its cells without buying new machines, but that's only because the machines were relatively new to begin with. "Some of the older equipment we have, we can't do dry hobbing," Bieber says. "It just doesn't lend itself to it."

But for UGA, converting to dry hobbing has been a big success, Bieber says. "By switching to dry hobbing, we were able to increase the capacity, and it's really opened up some opportunities for us." ■

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