



Technology

## Why You Need to Stop Buying Cheap Cutting Tools

Kip Hanson | Jan 11, 2022

In the fast and highly competitive race called machining, shopping for the lowest-priced cutting tools only makes sense. Unfortunately, it can also be a sure path to failure, as explained by these six experts.

Everyone wants a good deal. That's just as true when shopping for cars and groceries as it is when buying cutting tools.

But just like cheap imported sedans and generic hot dogs, you don't always get what you bargain for with low-cost drills, end mills and carbide inserts.

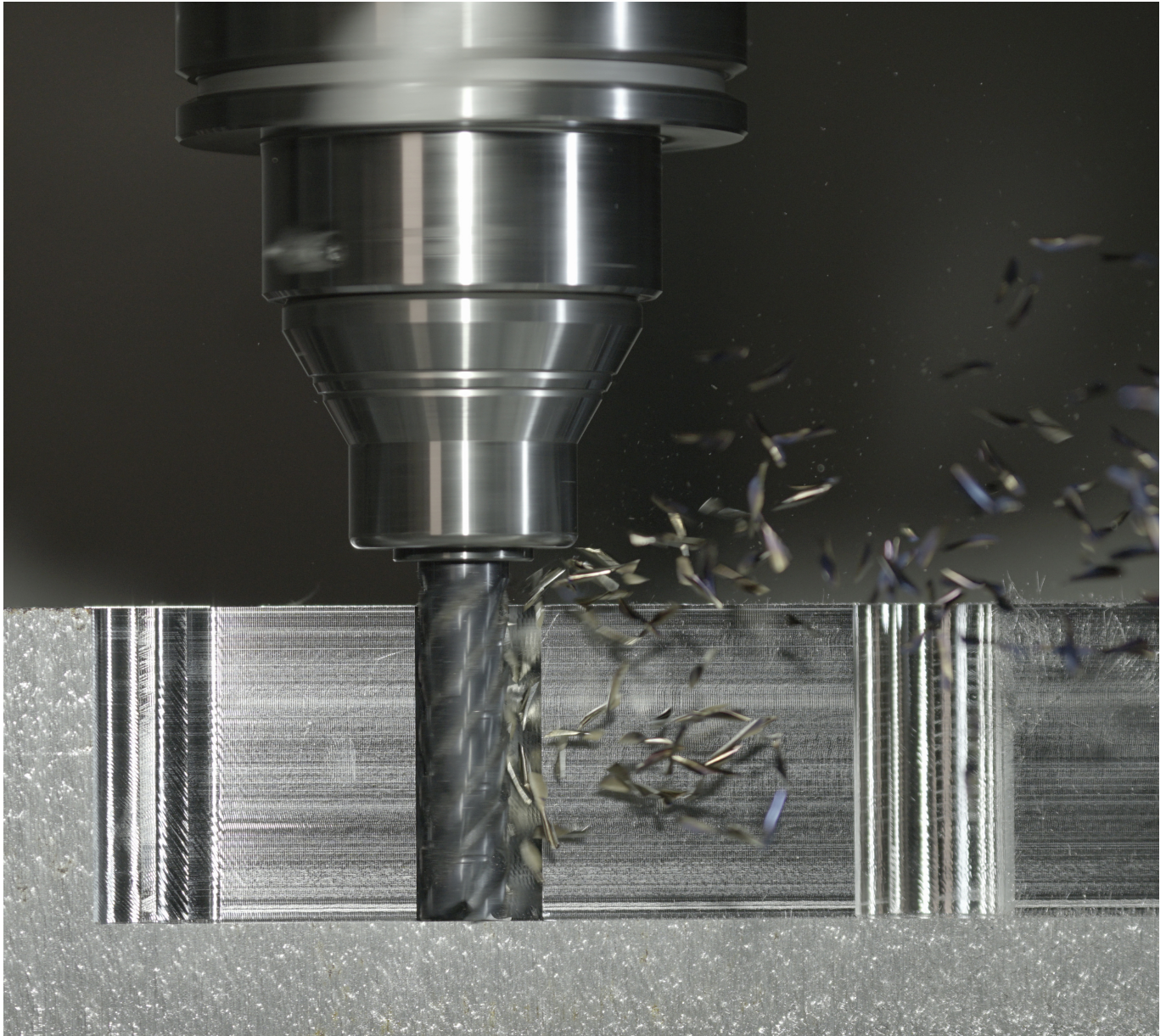
Granted, these tools have their place. Maybe. If your shop cuts hardware-grade plastic parts, who cares about tool life? If process predictability is unimportant to you, stop reading and go back to work.

**"While it can be tempting to save a little upfront by buying a low-cost drill or end mill, the proper application of high-performance tooling offers a much larger potential for cost savings."**

Andy Moon  
Guhring

But if your shop cares about maximizing productivity and achieving consistently high part quality, here's some advice from the experts on why spending a bit more for your cutting tools typically yields a significant return on investment.

### Small Cost, Large Potential



A cutting tool's initial cost can easily be outweighed by the increase in productivity gained with high-performance tooling. (Image courtesy of Guhring)

Andy Moon, product manager for Milling & GM 300 at Guhring Inc., explains that cutting tool expense represents but a small part of a machined component's final cost.

"While it can be tempting to save a little upfront by buying a low-cost drill or end mill, the proper application of high-performance tooling offers a much larger potential for cost savings," he says.

"For example, even on a relatively small 100-piece production order, saving two minutes per part at a \$100 burden rate results in a \$333 cost savings," he says.

"Scenarios like this are common with a high-performance cutting tool," he adds. "At Guhring, our goal is to prove that our tools provide better productivity, quality and consistency. You can't put a value on avoiding quality issues and missed shipments."

***Read more: [Small Parts and Precision Machining: Advice from the Experts on Tools and Techniques](#)***

## Utmost Importance



The TuffCut XT family of end mills consists of extensive offerings in both 4-flute and 5-flute options as well as square end, corner radius and ball nose end configurations. (Image courtesy of M.A. Ford)

“Ask any customer what’s most important: short cycle time or long tool life? Most of the time, they’ll say both,” says Dirk Dietsch, M.A. Ford’s regional business manager for the Great Lakes, who suggests that achieving these objectives requires the highest quality cutting tools available.

He’ll also tell you that not all tools are created equal. Their manufacturers should utilize the finest carbide substrate available, the best hard coating technology, and be concerned with grinding the most effective geometry possible, paying special attention to the cutting edge.

“At M.A. Ford, we feel the highest quality cutting tool is of the utmost importance, followed closely by availability and delivery,” Dietsch says. “What good is a great tool if you can’t rely on getting it? This is what sets us apart from many of our competitors’ products, especially those made offshore, where delivery issues are common.”

“We also offer the technical support needed to help customers troubleshoot problems or improve their machining processes, and are happy to supply them with a complete analysis illustrating the cost savings a high-quality tool can deliver,” he adds. “For us, the bottom line is all about helping our customers make money.”

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## Say Goodbye to HSS

Daniel Caraveo, applications engineer for OSG USA Inc., shares an application story from a shop drilling interrupted holes in 30 HRC steel.

"Their main problem was drill walk, followed by short, unstable tool life," he says.

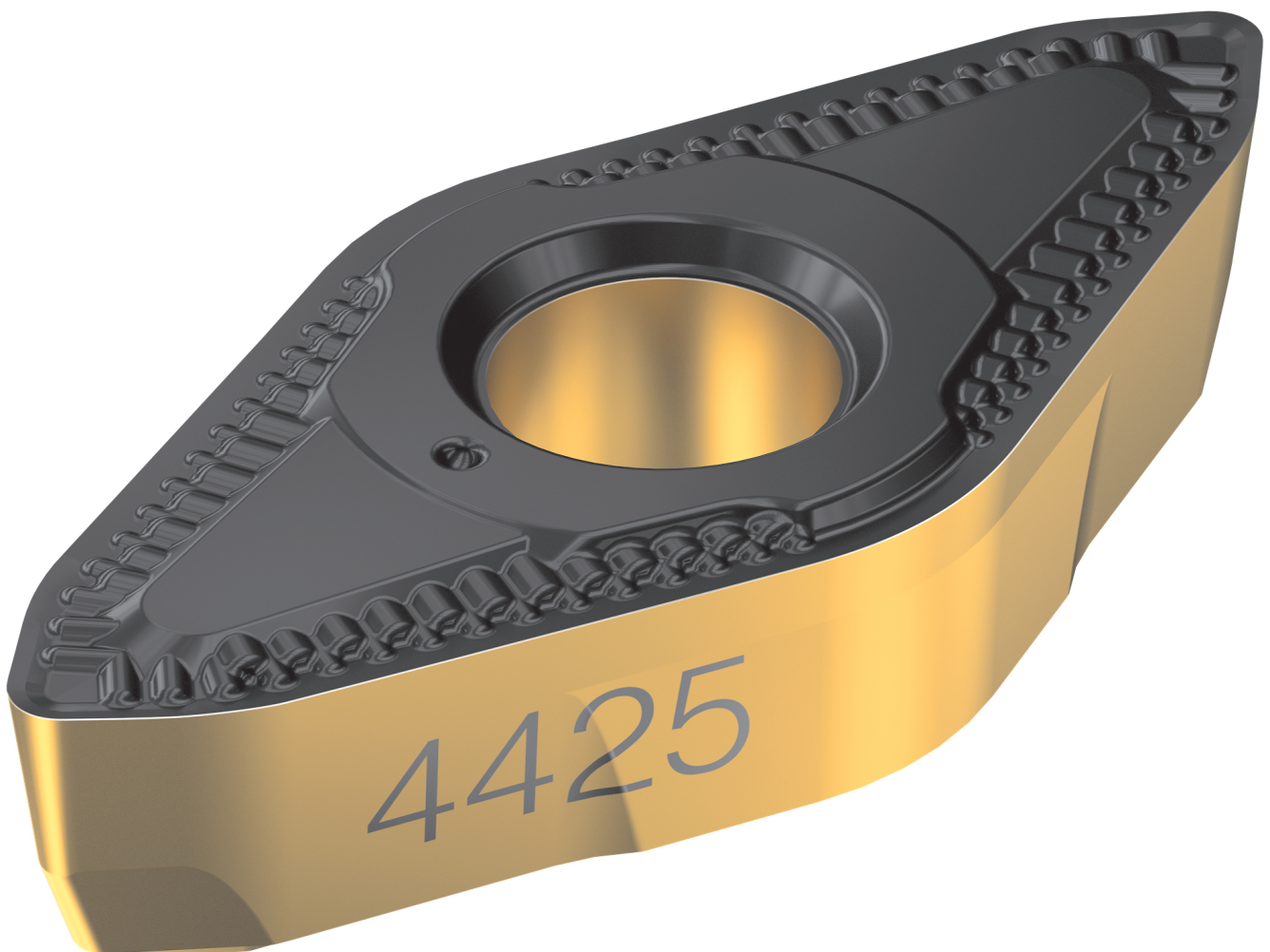
"Due to extended drill length, they were starting the hole with a carbide center drill, then using an extended length HSS drill," he adds. "Between the lower cutting speeds and the need to peck, the cycle times were also very long. They reached out to us for help in finding a better solution."

OSG recommended using one of its stub-length tools to drill a pilot hole, then finishing with an 8xD double margin drill. Both tools were solid carbide, coolant-fed, and boasted one of the company's proprietary coatings. The result? OSG's high-performance solution reduced cycle times by 60 percent, leading to an annual savings of \$49,674.

"And because the carbide tools eliminated any drill walk, process repeatability and part quality also improved," he adds. "The customer was quite pleased."

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## Double Jeopardy



Poor chip control can make unattended machining an impossibility. Using Sandvik Coromant's CoroTurn Prime solution, one customer was able to save hundreds of thousands of dollars annually. (Image courtesy of Sandvik Coromant)

"Shops often skimp on standard turning inserts when they don't believe there's a difference in grade or geometry performance," says Brian Wilson, product and industry segment manager at Sandvik Coromant.

"Yet premature cutting tool wear or breakage not only causes machine downtime, but can jeopardize

operator safety and component quality as well," he adds.

He points out that cutting tools represent only 3 percent on average of a shop's total cost of ownership, but poor tool performance can drive these costs up significantly, including higher energy consumption, poor part quality and scrap, decreased productivity, and other negative elements.

For instance, a customer in the Midwest was using a traditional turning insert in an automated axle shaft cell. Chip control became such an issue that they had to replace the robot with a human operator. They called Sandvik Coromant for help.

"We implemented our CoroTurn Prime B Turning solution," Wilson says. "As a result, the chip control issue was solved, tool life improved, and the customer was able to return to their autonomous operation, saving them hundreds of thousands of dollars."

## **Learning Hard Lessons**

Scott Lowe, U.S. national sales manager for EMUGE, says that customers are doing themselves a huge disservice if they base tool purchasing decisions on price alone.

Says Lowe: "One great example of this is a customer of ours, Harris Equipment, a leading manufacturer of scrap recycling and processing equipment. They were tapping 3/4"-10 holes in HARDOX 450 wear plate and only getting 10 parts per tap, so switched to a competing tool. That brought them up to 70 parts per tap, a significant improvement."

"After trying an EMUGE tap, however, they were able to take the hole count to over 300! So even though our solution was 42 percent higher in price, it still delivered more than \$11.50 savings per part," he adds. "The message? Don't become infatuated with cutting tool prices. You could lose your competitive edge."

*Read more: [Video: How Has Manufacturing Changed Your Life?](#)*

## **Better Investments**



High performing yet extremely versatile, the HARVI I TE is a perfect end mill for job shops and others that machine multiple materials and perform diverse operations. (Image courtesy of Kennametal)

When it comes to cutting metal, investing in high-quality tools means investing in superior materials, industry-leading coatings, innovative geometries and precision manufacturing,” says Keith Hoover, regional product manager at Kennametal.

Hoover notes that superior substrates beget improved performance, and whether that means increased tool life or increased productivity, purchasing a product with a substrate specifically engineered for your application is money well spent.

The same can be said for something as simple as edge preparation, which must be tightly controlled to guarantee the best performance.

Such high-quality solutions also employ innovative geometries on both general-purpose and application-specific cutting tools to deliver exceptional performance, and are more precisely manufactured than the “cheap” competition.

“Whatever the application, a high-performance cutting tool will consistently deliver better surface finish, higher productivity, greater accuracy, more stable processes and longer tool life,” Hoover says.

***Read more: [Small Parts and Precision Machining: Advice from the Experts on Tools and Techniques](#)***

***Have you made the mistake of using the lowest-priced cutting tools? What challenges or issues can you share? Let us know in the comments below.***

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