



Metalworking

M.A. Ford Shows Machine Shops How High-Performance Drills Cut Costs

James Langford | Nov 28, 2023

The next time you're stuck in an airport fuming over yet another flight delay, think about what the same trip would have been like 100 years earlier.

There were no pressurized jetliners with in-flight snacks, reclining seats and WiFi that could travel from New York to Los Angeles in a little more than six hours.

In fact, not only were propellor-driven biplanes state-of-the-art aircraft in 1923, the first commercial flight was still three years away. When it was finally made, its two passengers would be equipped with goggles and parachutes and sit atop bags of mail for an eight-hour journey from Salt Lake City to Los Angeles.

The journey from then to now required not only decades of advances in design and technology but also parts made from exotic metals and increasingly complex alloys engineered to heighten flexibility and durability as well as reduce weight.

Machining and manufacturing such components, meanwhile, has necessitated comparable advances in tools, which are still evolving to work harder, better and faster on jobs that are growing more difficult rather than easier.

M.A. Ford, founded in 1919, has been at the forefront of that transition, growing from a small Midwestern manufacturer to an international producer of standard, high-performance cutting tools with manufacturing facilities around the world.

Saving Time and Money

Its tools, including a wide range of drills, enable machine shops to improve productivity using even entry-level CNC machines, says Anthony Reyes, a regional business manager for the Davenport, Iowa-based company.

“High-performance drills are designed to support the enhanced cutting parameters machine shops need to reduce machine runtime overall,” Reyes explains. While they can deliver improvements even on older CNC machines, taking advantage of their full range of capabilities requires advanced models.

Older generations of tools wore out quickly on exotic metals such as Inconel, he notes, but newer carbide drills with more advanced geometries can run efficiently and consistently for much longer periods of time.

Still, sticker shock leaves some customers reluctant to invest in the advanced drills, which fetch prices several times higher than general purpose models.

In those cases, “I point out that the high-performance tool can outlast the other by as much as 20 times,” Reyes says. “But until I convince them to try it, a lot of shops just want to use their general purpose tools, bury them and put in another one.”

Maximizing drill performance is vital to machine shops grappling with inflation and a widening labor shortage at the same time that they’re adapting to growing use of exotic materials such as cobalt-chromium alloys in jet turbines and titanium in medical devices.

Read More: *How to Get the Most Out of High-Performance Cutting Tools*

“From shop to shop, all are geared toward reducing cost, which high-performance drills give them the ability to do,” Reyes says. “M.A. Ford continues to strive to design tools to save customers time and money.”

The toolmaker’s array of drills include the following models:

General purpose drills

General purpose drills, which have industry-standard grind geometry, are well suited for crafting prototypes as well as for small production runs, Reyes says. They’re not designed, however, for high metal removal rates or heavy pecking amounts, and machinists attempting to use them for high-performance tasks may encounter challenges from drill walking to oversized hole diameter and poor surface finish.

Those problems dissipate with M.A. Ford’s high-performance drills, which are built to handle more advanced cutting parameters.

Twister XD Series drills

2XD (Extreme Drilling) Drills



Photo courtesy of M.A. Ford

This series performs well in hardened steels and stainless steels as well as special materials and exotic metals. The 2XD models are all single margin drills, allowing for higher metal removal rates and extended tool life that reduce cost per hole without jeopardizing the hole quality. "We offer coolant-through as well as a solid option for machines that do not have through-the-spindle coolant," Reyes says.

The drills feature ALtima® coatings and are available in a wide variety of sizes, including flute lengths of 3xD, 5xD, 7xD and 12xD and diameters from 1/64 to 3/4. While the drills can be used without spotting, pilot holes are recommended for the extended lengths such as the 12xD. "They work extremely well in hard-to-machine materials, eliminating worries about tool failure during drilling operations," Reyes says.

MXD (Micro Extreme Drilling)

These micro-size cutting tools offer 2XD-series geometry in flute lengths of 2xD, 5xD and 12xD with solid and coolant-through options.

CXD (Cyclone Extreme Drilling)

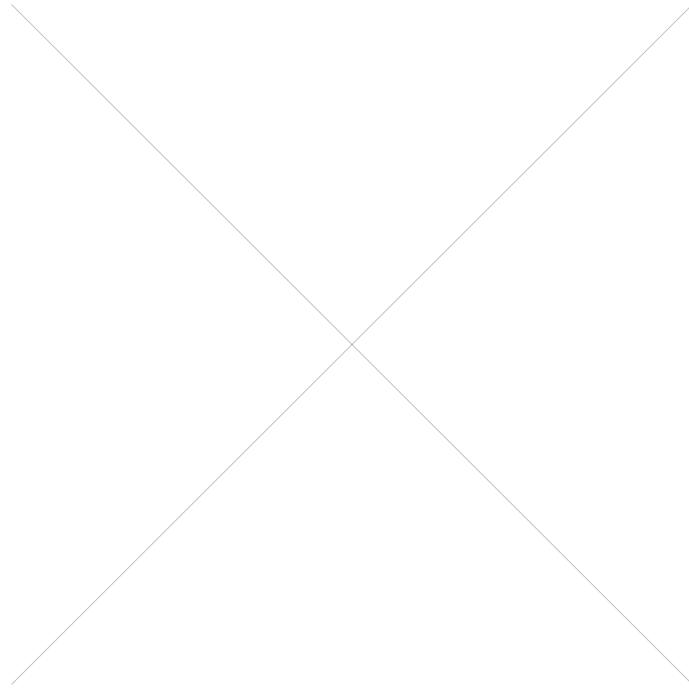


Photo courtesy of M.A. Ford

With CXD drills, M.A. Ford built on the performance of its 2XD drills. The CXD series has an enhanced double margin that allows for quicker engagement into the hole, improved hole finish and improved location when drilling into cross holes. Its enhanced ALtima® Plus coating lengthens tool life and reduces edge chipping.

CDA (Cyclone Drill Aluminum)



Photo courtesy of M.A. Ford

With similar tool geometry, the CDA series has point relief and edge preparation designed to maximize performance in nonferrous materials along with added features such as a deeper flute for increased chip evacuation. CDA drills are available only in coolant-through types and flute lengths of 5xD.

305 Series

These drills are designed to meet the needs of customers making small-diameter holes in hard-to-machine materials. With two flutes, they're made of solid carbide and come in lengths from 3xD to 10xD.

"Similar to our circuit board drills in sizes ranging from .0039 to .125, these drills have performed very well," Reyes says.

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