



Metalworking

Stealth Performer: Kennametal's Drill Fix PRO Makes Versatility Affordable

James Langford | Jul 25, 2023

For machine shops tackling a variety of holemaking jobs in workpieces of all shapes, sizes and materials, versatile drills are crucial.

Buying a separate drill for each hole isn't cost-effective to begin with, and especially not when shops are grappling with higher inflation, a shrinking workforce and supply-chain instability.

They need a tool that can adapt to an array of job requirements—and that's exactly what Kennametal has delivered with its new *Drill Fix PRO indexable platform*, an upgrade to the earlier Drill Fix line.

Indexable drills, which rely on removable inserts with multiple cutting edges, deliver a wider performance range at lower entry prices than solid drills.

While useful to heavily specialized industries, the Drill Fix PRO targets general engineering firms with diverse machines, equipment and processing capabilities, delivering "what we believe is the most robust indexable drill on the market," says Keith Hoover, regional product manager for holemaking and hole finishing at Kennametal.

Wider Hole Diameters, Shorter Depths

Indexable drills are generally used for larger holes and shorter depths, he adds. While the Drill Fix PRO can cut from 2 diameters (2xD) to 5 diameters deep, it delivers hole diameters from half an inch to 2.5 inches.

One advantage for customers is that they don't need to buy various sizes of pricier carbide drills, replacing them every time they wear out, but can instead invest in a steel body that can be reused for a very long time, repurchasing only the comparatively inexpensive carbide inserts when they reach the end of their life spans, Hoover says.



The Drill Fix PRO can cut from 2 diameters (2xD) to 5 diameters deep and deliver hole diameters from half an inch to 2.5 inches.

Discover Kennametal's innovative tool lineup.

With the indexable system, “your total investment starts to decline versus, say, a comparable solid carbide drill, which would be considerably more expensive,” he explains.

Another plus with the Drill Fix PRO is that its inserts each have four cutting edges, compared with previous high-performing models that had only three.

“Delivering the maximum number of edges per insert helps improve the economics for our customers,” Hoover says. Molding unique pocket seats for the inboard and outboard inserts makes it easier for operators to distinguish between them and to accurately choose optimal geometry and grade coatings for a given cutting zone.

Maximizing Tool Life

While a solid drill would use the same coating across the entire tip, inserts with different coatings can be attached to an indexable drill as needed.

“Now, we can make sure that we’re getting the maximum tool life out of each edge on that insert and make sure that we’re maximizing the economic benefit of an indexable drill,” Hoover explains.

“The stronger the drill is, the better you’re able to handle situations where you’re not drilling into a flat, nicely machined surface. You can drill into forgings, castings and the sides of rounded parts.”

Keith Hoover
Kennametal

The toolmaker’s new stainless steel and high-temperature alloy indexable insert grades KCMS40 and KCMS35 are both compatible with the Drill Fix PRO.

KCMS40 has a tougher substrate ideal for inboard inserts, while KCMS35 is more wear-resistant and works best at high velocities and metal removal rates for inboard inserts, Kennametal says.

Watch: *Introducing Drill Fix Pro—Robust, Versatile and Economic*

Testing showed the *new insert grades*, which both have a smooth coating surface, optimum layer adhesion and high depth-of-cut notching resistance, can double the length of tool life offered by competitor grades, the company says.

Another strength of the Drill Fix PRO is its stiffness and rigidity, which allows for larger offsets on a lathe, increasing the range of applications that the drill can support and offering heightened flexibility for customers.

“The stronger the drill is, the better you’re able to handle situations where you’re not drilling into a flat, nicely machined surface,” Hoover says. “You can drill into forgings, castings and the sides of rounded parts.”

The rigidity also reduces vibration and chatter that can degrade the surface quality and the positioning of the hole and wear out inserts more quickly.

“Along with improved tool life, the fringe side effect of having a strong enough drill to eliminate those vibrations is that there’s no more noise,” Hoover adds. Tasks that once required equipment operators to wear hearing protection are now quiet enough for them to have a normal conversation.

“One of the first comments I heard from our salespeople is, ‘We put this drill in, and it’s dead quiet,’” Hoover recalls. “The comfort level of the work environment around that application is vastly improved.”

Smoother Finishes

The Drill Fix PRO can also be used for chain drilling, leveraging drilling’s comparatively high metal removal rates to create a series of holes that can later be semifinished by an indexable shoulder mill, for example.

Because the hole was begun with a drill, there’s much less material to remove during finishing, delivering “huge productivity improvements over machinists that are just chipping away at that material with a solid end mill or indexable mill,” Hoover says.

The wiper included in all the Drill Fix PRO’s outboard inserts also delivers a high-quality surface finish, an achievement not at all common in indexable drills of the past.

With the correct positioning and settings, “surface finishes are often good enough with this drill that no post finishing operations are needed,” Hoover says.