

Innovate

Asking Y

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Sometimes advertisements are too good to be true. But the ad for the CoroCut QD for Y-axis parting tool lived up to its promises and has given American Valley Machining 500 to 600% gains on some operations.

£Brent Schelske knows a good thing when he sees it. A process improvement engineer at Valley Machining Company, he was surfing the Sandvik Coromant website recently for technical information when he came across an advertisement for a new kind of cutting tool, one that seemingly breaks the rules of traditional turning operations. It's called the CoroCut QD for Y-axis parting, and whether you're a machinist or not, you'll appreciate Schelske's excitement over the new tool's potential.

The company has a long history of innovation. Established in 1980 by founders Len Van Otterloo and Chuck Ver Steeg, Valley Machining once specialized in multi-spindle turning. The Rock Valley, Iowa machine shop has grown by leaps and bounds since then, however, and today has 85 employees, 100,104 square feet of manufacturing space and provides precision-machined parts to customers throughout North America and countries around the world.

Although many of its original cam-operated multi-spindle lathes are still in use, Valley Machining has kept pace with machine tool innovation, investing in dozens of CNC machining centers and advanced multi-tasking lathes over the years. Schelske was developing a process plan for one of these—a twin-spindle, live-tool, Y-axis mill-turn machine—when he called his local tooling representative, Dick Kersten of Cline Tool, to ask about Sandvik Coromant's newest parting tool.

"With a twin-spindle lathe, you're generally able to work on both sides of the part simultaneously, except during the parting operation," he says. "Because each spindle is in use at this time, any improvement gain here means a significant improvement opportunity—the video on the Sandvik Coromant website suggested feed rates up to three times faster using its Y-axis parting technology. To be honest, I was a little skeptical, but decided to see for myself."

£How does it work? With conventional parting operations, the cutoff tool is fed into the workpiece using the lathe's cross slide, or X-axis. It works, but as any lathe operator will tell you, parting operations are among the most challenging of all in terms of tool life and predictability, especially on larger workpieces where it's difficult to achieve good coolant flow and chip evacuation.

But many newer lathes like those on Valley Machining's production floor are able to move tools up and down in the Y-axis, similar to a milling machine. This is great for machining pockets in the face of a workpiece, for example, or milling a slot along its length.

Sandvik Coromant has leveraged this capability, flipping the decades-old X-axis parting tool design on its head. By driving the tool upwards in the Y-axis, engineers found that most of the cutting forces are redirected in a perpendicular direction, towards the mounting block and into the strongest area of support. The result is better tool life, improved part quality and substantially greater productivity.

£A few days after making his now game-changing phone call, Schelske was called to the front office to greet a regular visitor—Valley Machining's yellow-coated tooling engineer Lyle Schneider was there, CoroCut QD parting blades at the ready. The two headed out to the shop floor and got to work.

After making some program adjustments, a tweak to the machine settings so that it would

"understand" what Schelske was asking it to do, and some modifications to the tool block to accommodate the parting tool's novel geometry, the CoroCut QD not only worked as Sandvik Coromant promised it would, but far exceeded Schelske's expectations.

"The smallest improvement we've seen so far is between 200 to 300%, but on most of our jobs it's closer to a 500 to 600% gain," he says. "Tool life is better as well and, more importantly, it's consistent. No more surprises. I'm always trying new products and new ways of doing things, but this has easily been the biggest improvement I've seen from any single cutting tool. I love walking people over to the machine to show them how great it works. Sandvik Coromant really scored a big win with the CoroCut QD; I'll never doubt them again."

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