TURNING MACHINES

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Shop Prolongs Tool Life Through Machine Rigidity

After years of dealing with equipment breakdowns and repairs, this shop owner decided an upgrade to new machine tools would allow him to focus on making parts instead.

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Dean Kauffman makes rollers. He makes them by the thousands—big rollers, small rollers, all used by steel mills to make the round, square and rectangular barstock that other manufacturers then turn into something else. Mr. Kauffman likes to think of these mills as giant Play-Doh Fun factories, squeezing red hot steel through a progressively smaller series of funnels and rollers until they reach their final shape. The rollers, however, are anything but fun to machine, made of hardened D2 tool steel and accurate to within ± 0.0005 inch.

Here's where the equipment selection has made a significant difference. Mr. Kauffman purchased a KLR-20 CNC lathe from Kent USA a year ago that eased many of the machining challenges he had been dealing with. He says, aside from marrying his wife, the purchase was probably the best decision he's ever made.

Take Me to the River

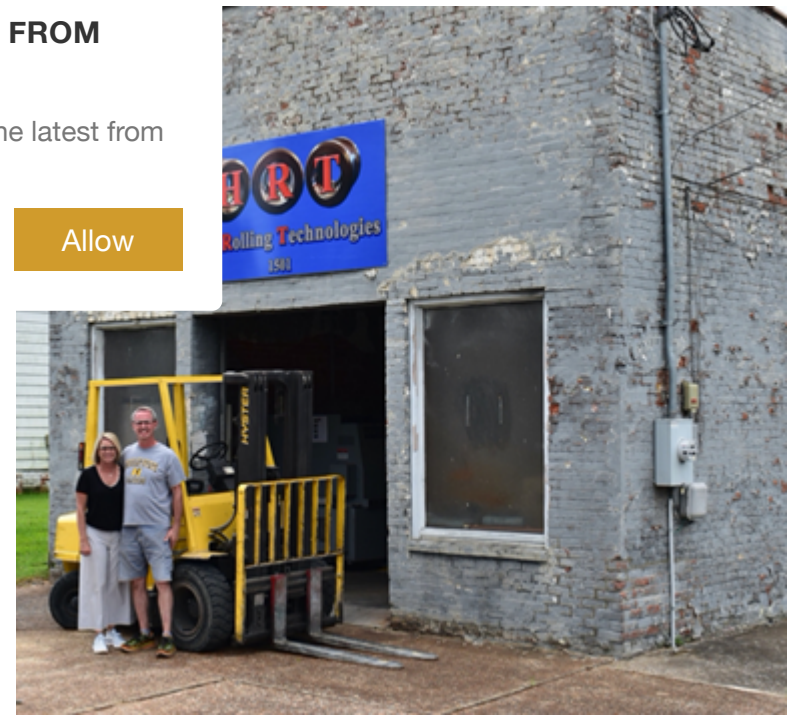
Mr. Kauffman's shop is in Paducah, Kentucky, a relatively small city near the intersection of neighboring Missouri and Illinois. The company is appropriately named Hot Rolling Technologies Inc., and the only two employees are him and his wife—he makes the parts, she does everything else.

His wife has been a lot less busy in the purchasing department, however, since they bought the new Kent USA machine, because his tool life has tripled. “There's no vibration, the cuts are smooth, and the tools now last forever,” Mr. Kauffman says. “And it’s quiet. If there weren't an Andon light on top, I wouldn't know whether it was running or not. I freaking love that machine.”

The machine’s standard accessories include a FANUC 0i-T control with an 8.4-inch color LCD, the FANUC i-Series high-torque spindle and axis motor with digital drive system, and a chain-type chip conveyor and chip cart. It has a maximum turning diameter of 12.9 inches,

maximum turning length of
capacity of 2.05 inches and
2.44 inches.

Mr. Kauffman once had a m
sold it a few years ago because it was getting too hard to find employees. That, and much of the equipment he had there was older, purchased years earlier from a well-known machine builder. Mr. Kauffman says he was getting a little tired of replacing motherboards and drive motors. When a friend mentioned that he'd like to start his own shop, Mr. Kauffman handed over the keys, moved back into his original building in downtown Paducah, and started over.



Dean Kauffman and his wife sold their larger company and opened up the new company in his original facility in downtown Paducah.

This time, however, he decided to take a different approach to machine tools. “I was getting pretty good at patching the old ones back together, but seeing as it's only me out there now, the last thing I wanted was to spend all my time fixing machines and not making parts. That's when I started buying new stuff.”

Lessons Learned

His first purchase was not a Kent USA machine. Nor was his second. Both machines have since been sold because of their ineffectiveness. On one, he says, “I couldn’t turn my smallest roller without the thing chattering across the floor.” He then turned to Glen Goins, president of Amerigo Machinery Co., who had recently started a machine tool dealership with Kent USA as a flagship line.

The rigidity of the company's KLR-20 has provided smooth cutting that has helped tools last three times longer.

“I knew Glen when he worked for another dealer, and he’s always been there for me,” Mr. Kauffman says. “Unlike some of the others who I’ve worked with over the years, he has his own service people, and when you call for support, they don’t transfer you to a help desk clerk who doesn’t know anything about machine tools.”

As it turns out, Mr. Kauffman hasn’t needed much help because the KLR-20 has been running flawlessly for the past year. “I’m shocked at how well that machine holds size,” he says. “It cuts the exact same size in the morning that it cut the previous afternoon, and when I tell it to move two tenths, it moves two tenths. I never have to fiddle with anything, and as I said before, the tool life is hugely better. It’s just an amazing machine.”

Rolling Forward

Mr. Kauffman likes it enough that he recently purchased his second piece of Kent USA equipment—a KVR 2418 machining center equipped with a 15-hp, 10,000-rpm chilled spindle, 25 tools, and FANUC 0i-MF 4+1 axis control. It has a large working capacity with 24

inch × 18-inch × 19-inch trav

The company recently added a KVR-2418 vertical machining center to assist in the production of a friction delivery guide from 316 stainless.

ing on a mating mentioned earlier. It's a de of 316 stainless steel.

Sales of the roller guides have increased substantially in recent months as well. "One customer has tripled its orders over the past month or so, and we're looking at some other parts for the new machining center," he says. "Altogether, roller guides are only about one-third of what we do here, with the rest of my time spent on the design and fabrication of related equipment for the steel mills. It's not romantic work, but it is important, and thanks to the Kent USA machinery, it's become a whole lot easier. They're both very rigid, stable and accurate machines."

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SINGLE & MULTI-SPINDLES

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Bridging the Gap Between Traditional Single- and Multi-Spindles

This twin-spindle automatic lathe with six cross-slide mounted turrets is designed for medium-sized production runs that might not be suitable for conventional multi-spindles.

#techbrief

EDITED BY
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A new line of twin-spindle automatic lathes could be the right fit when production batch sizes aren't quite as high as would typically run on a traditional multi-spindle automatic.

At IMTS 2022, Schütte USA introduced its new ECX series of twin-spindle automatic lathes. According to the company, this can be a cost-effective alternative to other complex multi-spindles with rigidity and torque as much as three times higher than conventional multi-spindles. It also says the ECX offers a solution as a highly productive, twin-spindle automatic for preproduction batches (PPAP) or batch sizes of complex workpieces that are below the practical or economic application limit for multi-spindles.

The ECX machine series is said to provide a practical, productive and flexible way to bridge the production gap between multi-spindles and the standard single-spindle automatics. Its main work area shown here features six multi-tool turrets. Photo Credit: Schütte USA

The ECX series is offered in two models with motorized main spindles of 46 mm/7,000 rpm and 65 mm/5,000 rpm. Providing the flexibility and simple handling of single-spindle automatics and the productivity of multi-spindle automatics in a two-spindle configuration, the ECX enables users to accomplish parallel machining with up to six cross-slide mounted turrets (four for the main spindle and two for the counter spindle). An optional single-axis slide may be added for cutoff.

The typical configuration includes a Y axis for multi-axis interpolation on all turrets. Live driven tools are also a common option for all turret positions for multi-axis interpolation. The counter spindle permits automatic machining of both front

and back ends of a part. A 1 tween tool positions with a precision tool interface fo r accuracy, rigidity and ample clearance between a

The ECX's rigid frame const upright structures provides an open workspace which enables chips to fall freely to the chip conveyor during machining cycles. Workspace accessibility from both sides of the machine helps keep setup times short while precise, modular tooling interfaces on the turrets enable quick change of preset tooling that can be staged during production. All drives, guideways and cables are housed within the structure, providing a safe, uncluttered workzone.

The machine's counter-spindle area offers automated part handling shown to the right. Photo Credit: Schütte USA

High-precision and cutting process damping is said to be assured through hydrostatic bearings. A modular handling system for simple parts as well as delicate finished workpieces is available. Schütte's SICS HMI software permits easy and quick configuration, programming, and operation through a 22-inch touchscreen.

Shorter product life cycles, greater complexity of
The company says that is what the ECX series (wh

xibility from machines for future workpieces.
signed to deliver. Photo Credit: PM

According to Schütte USA Pr solid reputation as a builder of top quality, multi hat foundation, we plan to accelerate the company's gr ts. Complementing our sales outreach will be a buildup in our service, engineering and customer support programs." Reinert also notes the long-range plans for Schütte USA include upgrades to the facility in Jackson, Michigan, with more demonstration machines.

Landscape Photo Credit: Schütte USA