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# Solid Construction and Fourth Axis Are Highlights of Shop's Newest VMC

A vertical machining center with a fourth axis from Kent USA enables Mega Industries LLC to serve national laboratories quickly and accurately.

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As a manufacturer of high-power microwave transmission equipment since 1989, [Mega Industries LLC](#) specializes in high-quality components for the scientific, commercial and military sectors. Its machine shop includes welders, grinders, testing and finishing equipment, and a team of experienced people to run it all. In fact, one of the key pieces of equipment used to produce the high-tech components and machinery needed to support the company's diverse customer base is a CNC machine tool found in other shops across North America — a 10,000-rpm, 15-hp, 24-tool KVR-4020A vertical machining center from [Kent USA](#).



Mega Industries Inc. produces products for the scientific and military sectors. The company was founded in 1989.

According to Walter Wunderlich, executive vice president for special projects, management at Mega Industries decided to purchase the new machining center two years ago. The reason was simple: One of its old machines was “tired,” and it was time for an upgrade, he says.

Mr. Wunderlich has been with Mega Industries since founder Don Paul first opened the company's doors, and he has since watched it grow to more than 65 people and 38,000 square feet of manufacturing and office space. Today, Mega Industries serves a host of national laboratories, including Los Alamos, Oak Ridge, Lawrence Berkeley and Argonne, as well as Switzerland's CERN facility, which is the European organization for nuclear research and home to the Large Hadron Collider.

Mr. Wunderlich set up an appointment to observe a machine in action on a nearby shop floor. “One of the first things we noticed about the Kent USA was its construction,” says Mike Ballard, machine shop supervisor. “While some of the other machines we'd checked out



leaked coolant and appeared with a lot of attention to detail

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## Hassle Free

Mr. Wunderlich soon placed an order for a new machine. Unfortunately, he received a damaged machine on delivery. “The dealer called to tell us the machine had been damaged during shipping,” Mr. Wunderlich says. “I suppose Kent USA could have replaced the dented sheet metal and made it look like new, but that possibility never even came up — the company just sent us a new machine, no questions asked. That says a lot.”

The KVR’s performance has also been better than expected. Mr. Ballard says the rapid traverse rates are roughly twice that of the old machine, with accuracy and metal removal capabilities to match. The control has also proven to be more capable, he says.

Advanced functionality is important with any machine tool, but even more important is reliability. Since its installation, the KVR has been kept busy two shifts each day machining aluminum, brass and stainless components. During this period, there hasn’t been any unplanned downtime. “Mike and I have been very pleased with the machine’s dependability,” Mr. Wunderlich says. “There have been no breakdowns, and I haven’t had to make a single service call on the KVR. I would buy another one in a heartbeat.”

## The Power of the Fourth Axis

All of the company’s ultra-high vacuum waveguide components, including flanges, are now being accurately run through the Kent KVR machining center. Because these components are heavily used in scientific research and medical applications, the components tend to be manufactured from pure copper and stainless steel. Any compromise in finish quality will lead to poor radio frequency (RF) electrical performance, the company says.

The medium-duty KVR 4020A linear way VMC series is pre-wired for a fourth axis, a standard feature with Kent USA machining centers, as well as a spindle chiller and through-spindle coolant. “The fourth axis was a big deal for us,” Mr. Ballard says. “None of our other machines have that capability, and we knew it would increase our flexibility by allowing us to complete more of our parts in a single operation. We have eliminated multiple setups by using the fourth axis. Our RF load components now come off completed in one setup. All in all, the KVR fit the bill perfectly.”

Having the fourth axis and a vise setup now allows for simultaneous operations, such as milling a shape while holding the workpiece in a vise, then using the fourth axis to machine a bolt hole pattern or gas port. In addition, the company says it uses its new VMC for

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“To summarize, the Kent USA ~~USA~~ machining center has faster cutting speed and feeds, a smaller footprint, and [it] has lessened downtime,” Mr. Wunderlich says.

