A live-tool finished product produced by Von Ruden Manufacturing

Von Ruden Manufacturing Pairs *Complex Machinery* with ESPRIT CAM for Comprehensive Service

By Stacey Wiebe

If the average work day at Von Ruden Manufacturing included a multiple-choice exam, missing a deadline would not be among those choices.

As any successful manufacturer already knows, time is money and efficiency is the best weapon when it comes to battling the clock. As a company adept at meeting the challenges of a continuously evolving manufacturing environment, Von Ruden has designed and produced drive components for 67 years — beginning in 1946 with right-angle gear boxes and parallel-shaft speed reducers.

While the process of manufacturing at Von Ruden has changed drastically over the course of nearly seven decades, at least two things remain unchanged: Efficiency is all in a day's work, and quality cannot be compromised.

"In the industries that we serve, we're a unique company in that we're family owned and operated in the United States — where we design, manufacture and service our own products," says Brandon Anderson, president and owner of Von Ruden Manufacturing. "We have full control over everything that we design and manufacture. It's a full circle."

Today, the company's full-circle services include the manufacturing and distribution of a complete line of hydraulic motors, gear boxes, brakes and tool products, along with accessory items such as valves and overhung load adapters. Another unique feature for Von Ruden is that it makes all of the gear components for its products — which entails just about every product that it makes.

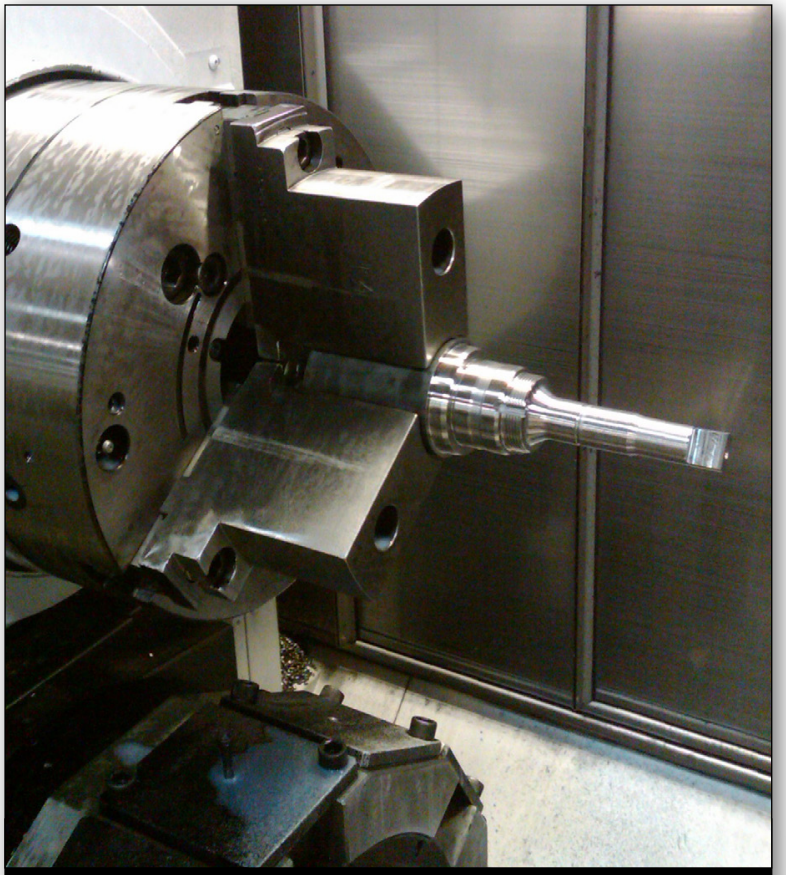
"We're a niche company that sustains high quality

parts and competes with companies hundreds of times our size," Anderson says.

In 2001, Von Ruden launched a new "Driven Tool" product line, which is a line of driven and static tooling for the machine-tool market that was initially designed by the company simply to meet its own needs.

"The performance of the tooling, the design and service we received from other companies was not enough for us to succeed," Anderson says. "We were able to make tools that were better for our operations and found that our customers wanted the same."

Von Ruden employs a staff of 49 and a range of 50 CNC machine tools to serve roughly 4,000 customers primarily within the agricultural, construction, printing and industrial fields. Its workforce of the metal variety includes horizontal and vertical mills, horizontal lathes, grinders, and more.



A Von Ruden part completed after the first operation

In 2008, the company purchased a Mori Seiki NT 4250 multi-tasking machine tool and found itself in need of powerful computer-aided-manufacturing (CAM) software to program its new complex machinery. It was ultimately the characteristics of the machine tool itself that directed its choice of software.

"At that point, since we were advancing in the machine technology, it was time for us to try something we hadn't tried before," Anderson says of selecting CAM software. "We saw the effort that DP Technology was making with Mori Seiki and that led to us trying ESPRIT. We knew that effort with the OEM (original equipment manufacturer) was a factor for us because we knew it was going to continue. "

DP Technology, creator of ESPRIT® CAM software, has partnered with major machine-tool manufacturer Mori Seiki for several years. For the customers of both companies, this translates to Mori Seiki factory-certified ESPRIT post processors and Mori-specific ESPRIT customer support — including an ESPRIT application engineer stationed within a Mori Seiki facility.

More recently, and in line with the merging of machine-tool companies Mori Seiki and DMG, ESPRIT was selected as a partner in the DMG MORI Qualified Products Program. The program was created to facilitate the technology-acquisition process by providing customers with a single, optimized source for manufacturing equipment.

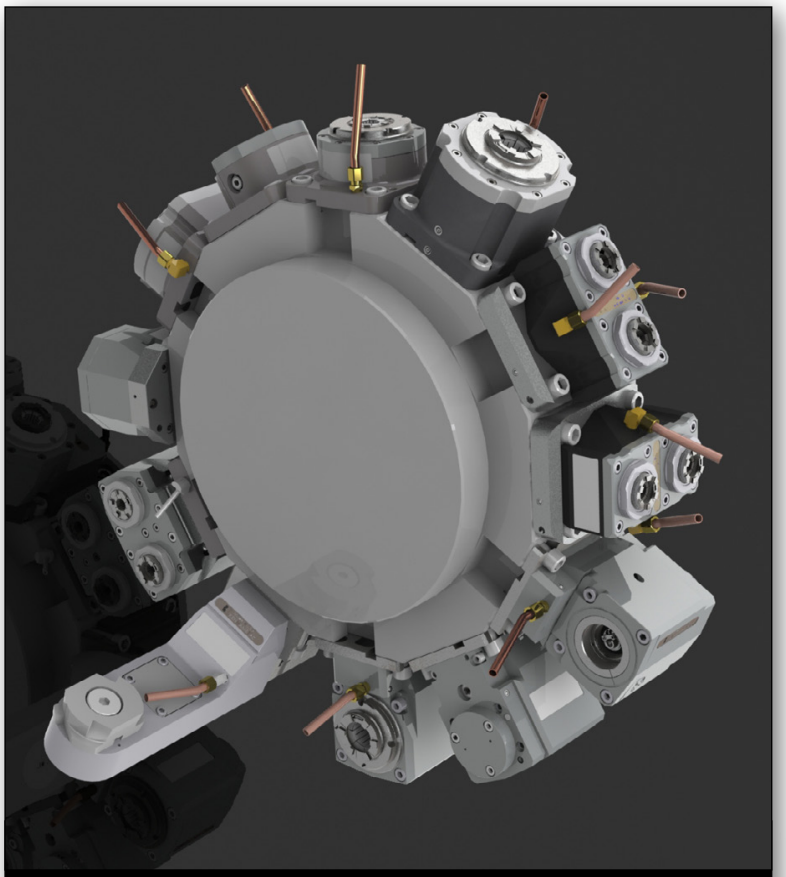
"Our primary reason for investing in ESPRIT was to reduce our process development time from design to product release, to making the first chip on our CNC machines," says Steve Geurts, operations manager. "If we are able to utilize in our CAM package all of the part geometry as established in our CAD package, it greatly reduces time spent in manufacturing engineering on part program, or G-code, development. As our manufacturing engineers become more proficient

with ESPRIT, we are beginning to realize a savings."

While some of its products may not require the tightest of tolerances, others, such as driven tooling, must hold a tolerance of one or two tenths. Likewise, many parts at Von Ruden require multiple operations to complete. "Our strategy here, through continuous improvement activities and investing in technology, is to reduce this number," says Geurts.

Paired with robust software, the implementation of multi-tasking machinery often translates to time savings in the form of a reduction in the number of operations — in many cases taking five or six operations down to just one — in addition to reduced part loss from machine set-ups and improved part quality.

The company's five programmers also found that the software made it easy to retain the integrity of CAD (computer-aided-design) data, process retention, and more.



Von Ruden live tools on a machine-tool turret

"For our multi-axis Mori Seiki NT4250, ESPRIT was the obvious choice," says Frank Matz, manufacturing engineering coordinator. "With the integration between SolidWorks® and ESPRIT, solid models import seamlessly into ESPRIT so that there is no need for data duplication on the CAM side, unlike when using other CAM packages."

Before acquiring the NT4250 and ESPRIT, Von Ruden's live tooling required eight hours of setup time, four operations across several work centers and seven days of processing — and each setup resulted in a significant amount of scrap material.

"You have the ability to save and reuse machining processes, bolt-hole patterns, pocketing, and more," Matz says. "Once you have a few parts under your belt, you never have to program a new part from the ground up every time. The geometry can be completely changed from the previous part and ESPRIT will read the solid model and adjust

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— *Steve Geurts, Von Ruden Manufacturing*

accordingly."

Parts can now be completed in a single operation, which cuts setup time by 95 percent. In addition, projected lead times were reduced from eight weeks to fewer than three weeks, and scrap has been nearly eliminated.

As explained by Manufacturing Engineer Julie Weege, ESPRIT also makes it simple to import a solid model from SolidWorks, "orient the part to our machine axis, and program right from the solid part."

"Having the graphic on your computer to visually see any crashes is the best thing since sliced bread," Weege says. "I cannot wait to become more efficient on this software and figure out the little tricks and shortcuts."

For Geurts, knowing that Von Ruden will be supported if, or when, technological and mechanical glitches do occur was an element of choosing the right CAM package.

"If we ever have an issue, I know I can reach out and get a resolution." ◆

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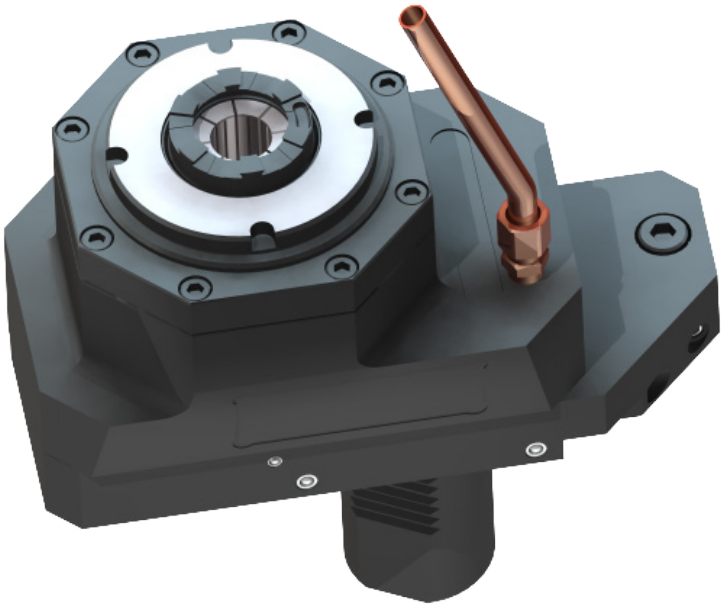

A finished Von Ruden live-tool product