

Innovate

## Sandvik's PrimeTurning™ Cuts Machine Time at NJ Manufacturer

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In East Brunswick, New Jersey, 38 miles southwest of New York City, Henry Dieken oversees Vahl Inc., a family-owned company that specializes in producing high-tech landing-gear components for a variety of US-made aircraft.

Up a flight of stairs from the 66,000-square-foot machine shop, he shares an office with his feathered friend Tico, a 33-year-old Malaccan cockatoo that perches on a spare chair. ("She's the watchdog," Henry says.) Born in Germany in 1938, Henry came to the United States as a tool-and-die maker in 1959 and soon landed a job with Vahl. One of the company's jobs in those days was making parts for the Lunar Excursion Module for the Apollo spacecraft that landed on the Moon in 1969.

Henry bought into the company in 1973, and he now owns it jointly with his son and grandson, both of whom work in the shop, plus the son of a former partner. Henry recently turned 80 years old, but he shows no signs of slowing down. For one thing, he wants to see the results of Vahl's recent incorporation of Sandvik Coromant's PrimeTurning™ concept into its operations. "We're looking at a long-term payoff," he says.

In February 2018, the company started using PrimeTurning, a solution that enables machinists to do turning in all directions on a CNC lathe in a much more efficient and productive way than with conventional turning. So far, Vahl has used PrimeTurning to produce three landing-gear parts: a rod end for the F-35 stealth fighter made by Lockheed Martin, and a bolt and a side brace link for the F-18 combat jet made by Boeing.

"We've seen tremendous time savings on all three components," says Jerry Dieken, Henry's son. For example, the first step in removing material for the F-18 side brace used to take one hour and three minutes. With PrimeTurning, it now takes 19 minutes, a decrease of nearly 70 percent. Similarly, roughing out the rod end for the F-35 used to take 45 minutes. PrimeTurning has reduced that time to nine minutes, a decrease of 80 percent.

Jerry was so impressed with the results he was getting from PrimeTurning that in August 2018 he posted a video of the process on LinkedIn. "It got 2,000 views in 24 hours, even though I've only got about 300 followers," he says.

Clearly, word of the new process had piqued the interest of people in the industry who wanted to learn more about this new approach to machining, in which the insert can travel towards the tailstock of the lathe rather than towards the chuck.

"We're going to use it anywhere and everywhere we can," Jerry says. "Obviously, it takes time to reprogram, but the machine time is going to decrease substantially, and reprogramming is a no-brainer."

When he first heard about PrimeTurning at a DMG MORI Open House, Jerry was intrigued. "The concept is new," he says. "It's turning upside down, literally, from cutting in one direction to cutting in a different direction and doing it with greater depth of cuts and speed of feed rates." The depth and speed are the key factors in the dramatic time savings from PrimeTurning. On the Sandvik Coromant side, the introduction of PrimeTurning at Vahl was supported by Digant Patel, sales engineer, and Tony

Wild, machining specialist.

Currently, Vahl is using PrimeTurning on two of its machines, but the company plans to use it on others going forward. However, Derek Dieken, Jerry's son (and Henry's grandson), stresses the need to examine each new job to see if PrimeTurning is appropriate. "It's not a turning tool for any and every part," he says.

Jerry explains, "As each job comes up, we'll evaluate to see what we can do. There are certain conditions you need. You need to be able to hold the part in the chuck hard, and you need to support the tailstock. Each job is unique."

Still, he sees considerable scope for expansion. "I can see doing all the roughing on our machines with Prime," Jerry says.

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