look-ahead

By Alan Richter, Editor

THIS MONTH

Cutting Tool Engineering covers:

- A tool clamp that permits optimal coolant delivery on Swiss-style machines; and
- An industrial-grade, wearable computing device.

HERE COME THE COOL JETS

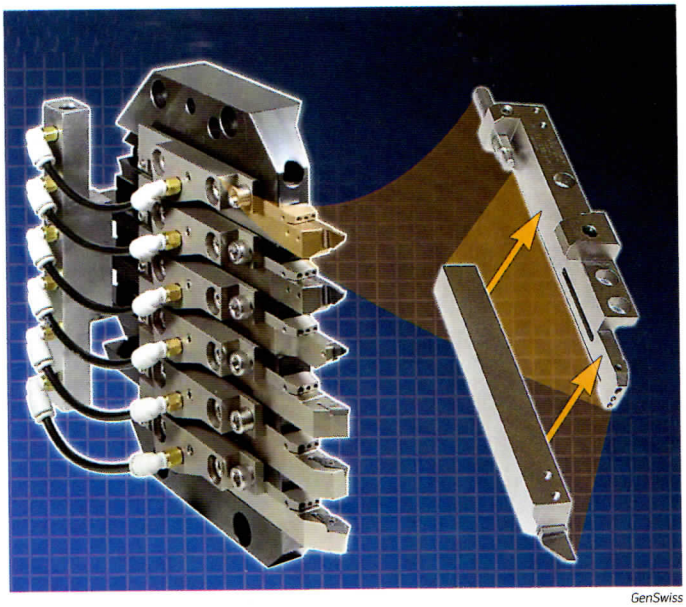
Applying high-pressure coolant when Swiss-style turning is effective at clearing chips to prevent them from welding to the workpiece or wrapping around the cutting tool. However, steering the coolant as close as possible to the cutting edge is tricky.

To remedy the situation while not pigeonholing the end user into one brand of cutting tool, Genevieve Swiss Industries Inc. offers the Multidec-Lube through-coolant tool clamp from Utilis AG, Müllheim, Switzerland. The patented system incorporates a coolant or oil delivery passage in the tool clamp to ensure a repeatable jet flow within a few millimeters of the tool/workpiece interface even after multiple tool changes, setups or teardowns, according to GenSwiss. It replaces the original gang slide tool clamps that come with a machine, allowing use of conventional, non-through-coolant, square-shank toolholders as if they were through-coolant holders because the coolant travels through the Multidec-Lube clamp.

"Most Swiss turning centers have four to eight turning stations, and you can equip each one of those with one of these clamps and permanently run high-pressure lines," said Scott Laprade, marketing manager for GenSwiss, noting the system didn't leak when tested at 2,000 psi. "I don't know anyone running anything higher."

He added that an adjustable stop provides quick-change capability by enabling users to position a tool in the exact same location after an insert change.

Compared to manually bending and positioning coolant nozzles, the tool-clamp system drastically reduces setup time, according to Laprade. At the company's machine shop, it took at least a couple hours to accurately position multiple nozzles on a manifold setup for a Swiss-style machine, he said. "With these it takes a few minutes."



GenSwiss

With GenSwiss' Multidec-Lube tool clamp system, a square-shank, Swiss-style toolholder installs against the Multidec clamping wedge.

Although suitable for virtually all turning applications, on rare occasions, such as profiling a unique radius with a special tool, a fine-tuned manually adjustable nozzle might work better on one station, Laprade acknowledged. But the Multidec-Lube clamps would still be more effective than coolant nozzles for the remaining stations, he added.

Because of the large number of Citizen machines in use that employ ½" square-shank stick tools for turning, such as the A20, L20, K16 and M16 models, GenSwiss began by offering tool clamp systems for them, and plans to introduce ones for other makes and models throughout the year.

For more information about Genevieve Swiss Industries Inc., Westfield, Mass., call (888) 244-1404 or visit www.genswiss.com.

GLASSES THAT 'SEE' INSIDE MACHINES

Looking to blend safety, style and functionality, XOEye Technologies developed XOne, an industrial-grade wearable computing device in eyewear form that captures and streams high-fidelity audio and video. This enables first-person point-of-view (POV) workplace collaboration in real time, according to the company.

The device is equipped with an 8-megapixel camera, microphones and speakers for two-way audio communication and a suite of sensors, including a gyroscope and accelerometer for data measurement. The camera has options to record locally, stream live and capture still photos for data logging.

The device is made with safety-grade optical material, and prescription lenses are available. "We're developing this eyewear to be ANSI Z87.1-certified, which is the standard for general-safety optical material," said Anthony Blanco, chief business development officer for XOEye. "We're looking develop a piece of equipment employees would have to wear anyway for their own safety."

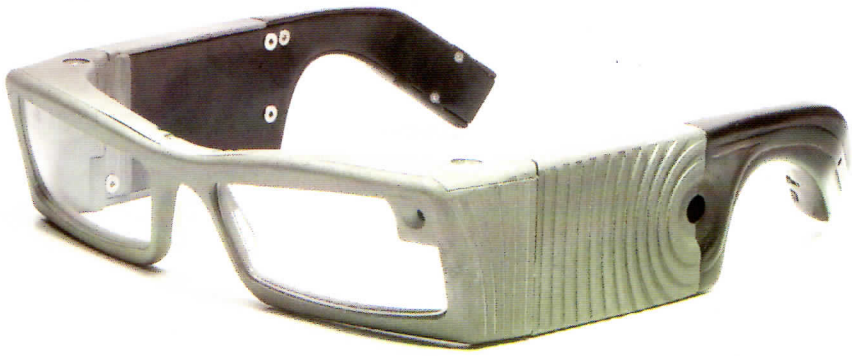
In addition to the hardware, the technology "stack" includes XOLinux firmware as the operating system and the company's Vision Runtime and

(continued on page 87)

Vision cloud-based software, which is a backend service layer that enables remote management of the device and its applications, Blanco noted.

He explained that the telepresence provided by the one-way video/two-way audio enables users to stream their POV live to anyone with Internet access. This could enable, for example, a parts manufacturer to perform machining operations at the plant and train remote teams, or a machine tool builder to remotely diagnose a downed piece of equipment rather than having a technician travel to the site or rely on e-mailed images. The eyewear device can be connected to the same or similar device, as well as to a computer, tablet or smartphone, Blanco added.

Manufacturers can also employ the device sensors to capture biometric data and help enhance worker safety, according to Blanco. For instance, if back injuries are an issue, the gyroscope could be employed to evaluate how many times somebody is bending past a 90° angle while working.



XOEye Technologies

XOne from XOEye Technologies is an industrial-grade wearable computing device that captures and streams high-fidelity audio and video.

Blanco noted XOEye is developing several key first-party apps, such as a bar code reader that ties into a company's existing inventory management system, and is opening its application programming interface documentation and developer portal to those who want to build on the device's foundational technology and adapt it for specific markets.

The developer community might even use the applications for other wearable computing devices. "You could take an existing piece of hardware and incorporate our firmware and software stack," Blanco said. "Not every industry needs a safety device. They may need something smaller and sleeker, and we don't want to limit those customers."

The company will start its developer program in the spring and release the XOne 1.0 technology to the general public in the summer, Blanco noted.

For more information about XOEye Technologies, Nashville, Tenn., call (800) 230-7047 or visit www.xoeye.com. CTE

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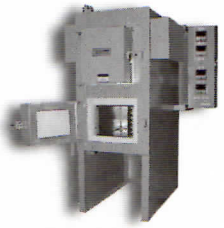

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