

► BY ALAN ROOKS, EDITORIAL DIRECTOR

Price-Conscious Pre\$etters\$

Shops that think tool presetters are too costly and too complicated should take another look.

No one disputes that cutting tool presetters allow shops to increase spindle uptime by setting up tools offline.

However, some small- to medium-size shop owners think that presetters are too costly to justify and too complex for operators to use effectively. However, presetter manufacturers appear to have new answers for those objections.

Several manufacturers recently introduced a range of entry-level presetters—most at IMTS 2006—priced between \$12,000 and \$23,000. Most of these lower-cost machines also feature easy-to-use, automatic tool measuring systems that take most of the guesswork out of presetting. Shops that typically produce small part runs and change cutting tools frequently can benefit the most from entry-level presetters because of reduced setup times. New higher-end presetters are also available.

Most of the units discussed here offer several ways to process and present tool information: printing a label that attaches to the tool, combining tool information for complete jobs in a printout or using a direct Ethernet link to the machine tool to transmit tool data electronically. Most units also offer tool measurement and inspection options.



ZOLLER INC., Ann Arbor, Mich., introduced a redesigned version of its entry-level “smile” no-contact presetting and measuring device. The manually operated smile unit is used for all machining operations and provides three different maximum Z-axis measurements, depending on tool length: 400mm (15.75”), 500mm (19.69”) and 800mm (31.49”). Standard parameters (length, diameter, corner radius and two cutting edge angles) are measured automatically. It has an industrial touch-screen monitor and offers automatic cutting edge detection in all four monitor quadrants, even when cutting edge angles are greater than 90°. Zoller focuses solely on developing and manufacturing tool presetting and measurement systems.

The smile’s camera system is a key benefit, said Alexander Zoller, vice president. He noted that some entry-level presetters measure cutting tools with a profile projector, which requires an operator to manually sight the tools, and measurement results can vary from operator to operator. Image processing in the Zoller unit is fully automatic

without any programming.

“As soon as the camera detects the cutting edge, it can measure five dimensions,” Zoller said. “This not only improves setup time, but also part quality because the tools are always set to the same dimensions.” The smile is simple to use, he added. “The operator moves the camera to the cutting edge using one hand and releases it as soon as the cutting edge comes into view.” The smile starts at \$16,500 and typically offers a 3- to 6-month payback, said Zoller. **\$**



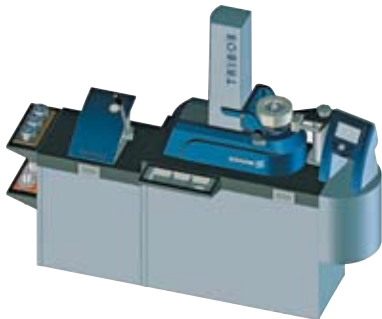
COMMAND TOOLING SYSTEMS, Ramsey, Minn., introduced the Command Digiset 6 presetter. Two Digiset 6 models—the 400 and 600—are available with a maximum Z-axis measurement of 400mm and 600mm, respectively. Digiset 6 offers tool management for 1,000 tools.

The Digiset 6 puts the latest video technology in an affordable package, said Dennis King, director of

engineering. “Presettters have evolved from micrometer-based, single-axis machines, to contact 2-axis machines, to noncontact machines with optical projectors, and, finally, to video cameras.”

Video systems allow users to make measurements not possible with optical comparators, said King. “You can measure a tool to its actual tool tip, or to theoretical sharp. You can trace the outline of a cutter and rotate the tool to see how the following inserts match the first one. You can change the lighting from the back of the tool to the front to see whether it’s cratered or has a damaged cutting edge.”

Simplicity is a key benefit, said King. “Basically, you look at the controller, decide what function you want, press the button and the machine will take you there or give you a simple menu to find it.” The Digiset 6 Model 400 lists for \$16,650 and the 600 for \$19,650. **\$**



SCHUNK USA, Morrisville, N.C., is introducing a midrange, manual presetter for its TRIBOS polygonal clamping toolholders through a partnership with EZset LLC, Ann Arbor, Mich. List price is \$18,000 for the 400mm maximum Z-axis model and \$22,000 for the 600mm model. Accuracy is within 0.004mm to 0.008mm. The device includes ImageController1 automatic image processing, tool inspection capability and a measurement program for radial and axial runout.

According to Jeff Keith, product manager, tooling components, the new presetter allows Schunk to offer TRIBOS toolholder users a full range of presetter choices. “We already offer a couple of basic TRIBOS dial caliper presetting devices with list prices from \$800 to \$2,500 and accuracy within 0.010mm. On the high end,

we recommend a TRIBOS presetting unit through a partnership with Zoller that is fully automatic, PC-controlled and has accuracy within 0.002mm.” All three presettters use an integrated hydraulic press to actuate the TRIBOS toolholder for presetting.

The new TRIBOS/EZset presetter is for medium to large job shops and production facilities that require tight-tolerance presetting. **\$**



LYNDEX-NIKKEN INC., Mundelein, Ill., is the exclusive North American importer of Elbo Controlli presettters. The newest presetter, the E-450, has a ground-granite column and base not affected by temperature changes, a spindle body assembled on spring roller cages and optical scales. The spindle body on the E-450’s machine base limits runout to less than 2µm. Elbo Controlli’s digital Twinvision-S camera system includes a single complementary metal-oxide semiconductor (CMOS) image sensor that manages both inspection and measurement. Maximum measuring diameter is 400mm (radius 200mm), and the maximum measuring height is 500mm.

“The digital camera is accurate over the entire viewing area,” said Preben Hansen, vice president and sales and marketing manager. “Analog cameras have curved lenses; they are very accurate at the center, but as you get away from the center, you start to lose accuracy. That’s why our presettters have all-digital optics.”

The camera allows for tool inspection as well as measurement. “When you have a tool up and are measuring it anyway, that is a golden opportunity to

look at the cutting edge,” said Hansen.

The E-450 uses a vacuum clamping system. “If you have a nice fit on the taper, it clamps. But if there is grit or dirt on the tool, causing an incorrect seal, the vacuum doesn’t hold and you get an error message. This warning ensures accurate taper contact and measurement,” said Hansen. The E-450, Elbo Controlli’s top-selling presetter worldwide, lists for \$15,900. **\$**



REGO-FIX TOOL CORP., Indianapolis, introduced a new TCAM2 monitor for its Toolmaster 10 presetter. The Toolmaster 10, made by Rego-Fix and PWB Systems AG, Switzerland, is a manually operated bench model. Its measuring column and tool spindles are mounted on a thermally stabilized and stress-free cast iron base. TCAM2 uses a digital CMOS camera. Maximum Z-axis measurement for two Toolmaster 10 models is 360mm and 500mm.

The new TCAM2 monitor has a 10.4” screen, compared to the old 3.4” screen. Also, the unit now uses a simple, mouse-driven interface. The camera automatically recognizes tools that have been entered in the system. “As soon as the tool is recognized, the only options you have for viewing it are the ones that will work for that tool,” said David McHenry, product engineer.

In addition, the Toolmaster 10 uses a needle bearing basket instead of a sealed bearing spindle. “It is a nylon pot with long needle bearings inside,” said McHenry. “You have much less spindle contact and less runout. Also, it is very durable; you don’t have to worry about dirt or debris hurting the needle bearing or the nylon basket itself. You can clean it out easily.”

The Toolmaster 10 allows users

to electronically correct parallelism between the unit's tower and master mandrel instead of using manual jack-screws. List price starts at \$12,900. **\$**



HAIMER USA LLC, Villa Park, Ill., introduced its Tool Dynamic presetter combined measuring and balancing system. It uses saturn 1 image processing technology and a telecentric objective camera with 35x magnification and automatically recognizes the shapes of cutting edges. Maximum Z-axis measurement is 450mm.

"Presetting and balancing are beneficial for many shops, but they are often overlooked because they don't make chips," said Brendt Holden, president. "We figured we could give customers two benefits when justifying the cost of one machine."

The clamping spindle of the balancing machine makes an excellent platform for tool measurement, as opposed to using reducer sleeves, said Holden. "We have actual spindles that go in and out of the machine and clamp on the tool just like it is held in the machine tool spindle, as opposed to standard presetters that have a master base and pot, and then use reducers to go from a 50-taper to a 40-taper toolholder. That can cause a slight stack up of tolerances, especially if you want to check runout."

Haimer provides the machine's balancing technology and Zoller the presetting technology. As part of the part-

nership, Zoller offers a combination shrinker/presetter using Haimer shrink-fit toolholder balancing technology and Zoller presetting technology.

By sending a balanced toolholder to the machine tool with correct offsets, many shops can increase production speeds, said Holden. "We're finding that shops operating low-rpm machines can sometimes get the most benefit. With a balanced tool, they can often move from 3,000 rpm to the machine's top capacity of 6,000 rpm." The price range for the Tool Dynamic presetter is \$70,000 to \$80,000. **\$**



BIG KAISER PRECISION TOOLING INC., Elk Grove Village, Ill., recently introduced the Speroni STP-35 Basic and STP-35 EzVision tool presetting systems. BIG Kaiser is the exclusive North American distributor of Speroni presetters. The new benchtop system has an extended Z-axis height to accommodate tools up to 20" (500mm) in length and display resolution of 0.000039". The optional EzVision is an automatic, digital tool sensing and measurement system.

"The Speroni STP-34 can handle tools up to 16" (400mm) in length, but some customers needed more length capacity," said Richard McCarthy, national sales manager, tool measuring systems. "To get that length, shops typically had to jump to a much larger and more expensive floor model machine, so we created the STP-35, with

a new, longer column. We could do that due to the robust and rigid nature of the cast iron base of the machine."

Most benchtop tool presetters are of fairly light construction, and many are made of aluminum, said McCarthy. "The cast iron STP-35 weighs over 300 lbs. and is very stable; the heat-treated cast iron gives us a linear expansion and contraction coefficient in the machines, so you don't see distortion in the guideways vs. the material they are bolted to." The STP-35 Basic lists for \$12,000 and the STP-35 EzVision lists for \$20,000. **\$**

The following companies contributed to this report:

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(847) 228-7660
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Command Tooling Systems
(800) 328-2197
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Haimer USA LLC
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Lyndex-Nikken Inc.
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Rego-Fix Tool Corp.
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