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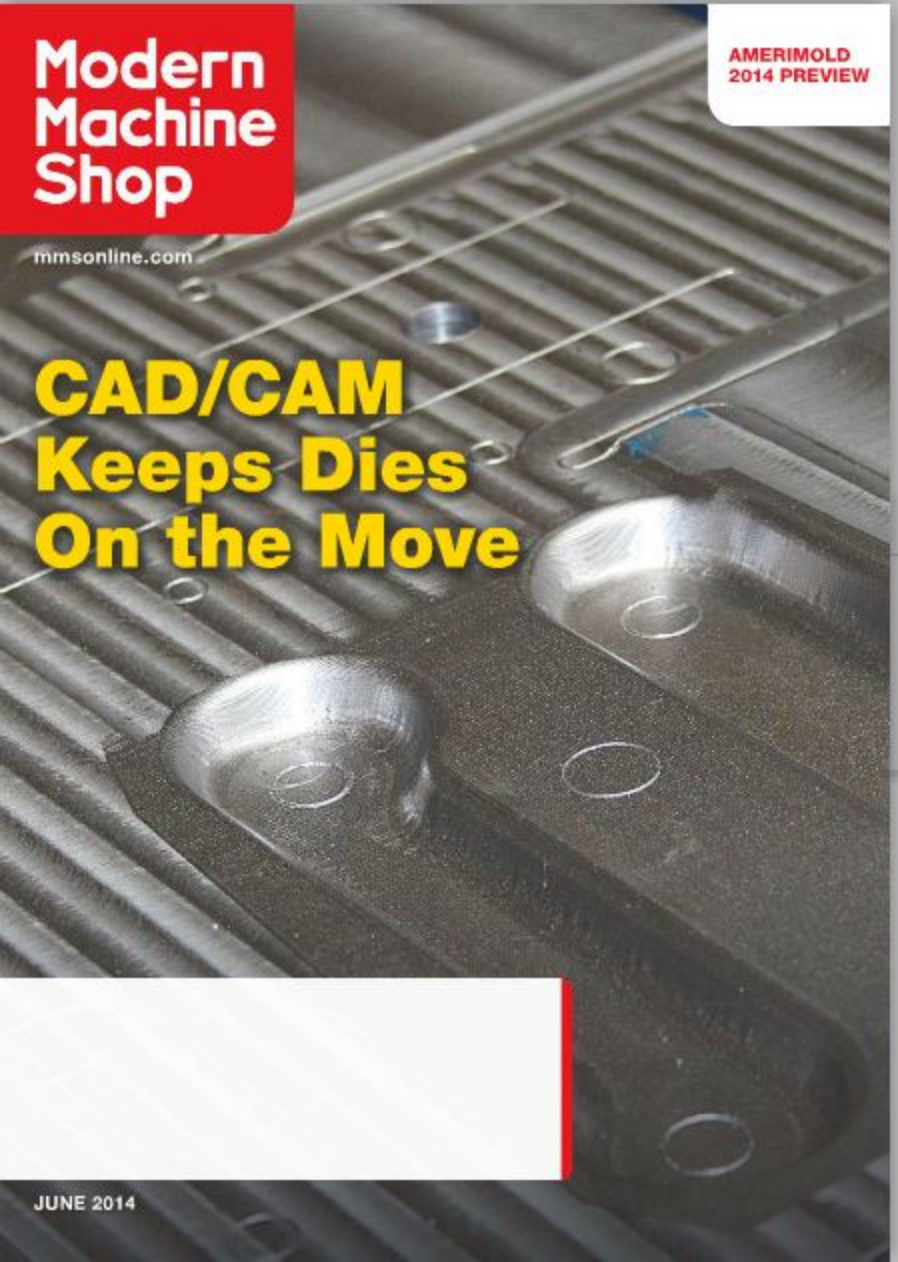
AMERIMOLD 2014 PREVIEW

CAD/CAM Keeps Dies On the Move



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change-outs, so that only six milling tools now do the amount of machining for this part that used to require over 30 tools.

As of yet, the new Nikken X-Treme holder is available only for titanium. It is being sold with the Technicut end mill as a system for titanium milling. Mr. Eckersall says the next step is likely to be Inconel. The holder is currently being used in test cutting that is evaluating a new high-metal-removal-rate tool for the nickel-based alloy. ■

How "Nano-Onions" Help Improve Cutting Performance

BY DEREK KORN

Simply put, "nano-onions" are spherical, nano-scale carbon structures. The nano-onions developed by Tool-X (Rochester, Michigan) that are blended with the company's SS-500 low-oil, semi-synthetic coolant offer physical properties that enable the coolant to provide increased tool life and overall cutting performance when machining ferrous and nonferrous materials.

Tool-X, call 248-495-4367 or visit tool-x.net.

The nano-onion particles in the SS-500 coolant feature a multi-layer structure that absorbs liquid and releases it under the pressure of cutting directly at the tool/workpiece interface. This is said to reduce cutting forces, which results in better surface finishes and increased speeds, feeds and material removal rates. The shearing action that the nano-onions are exposed to during machining also amplifies the number of particles in the coolant, improving coolant lubricity. Heat dissipation is an added benefit due to the nano-onions' thermally conductive properties. In addition, the particles effectively shot peen the surface of a tool, smoothing and improving the tool's surface finish.

The company says these characteristics enable the SS-500 coolant to increase tool life by as much as 400 percent and help reduce the effects of virtually every root cause of tool failure, including built-up edge, flank wear, chipping, crater wear and plastic deformation. Overall, the SS-500 coolant combines the lubricity of a soluble oil coolant with the cleanliness of a synthetic coolant, and can be used for a range of machining applications such as milling, drilling, tapping, turning, boring, sawing and grinding. ■

"Nano-onion" carbon nano-particles in the SS-500 coolant absorb and then release liquid under the pressure of cutting. In doing so, the liquid is released directly at the ideal location of the tool/workpiece interface. This coolant can be used for milling, drilling, tapping, turning, boring, grinding, sawing and so on.