

Technology

Ask the Expert: Technologies for Smart Production

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Haimer USA Vice President of Sales Steve Baier discusses technologies for smart production and how they all relate to one another.

1. What is Safe-Lock™ and how does it compare to other toolholding systems?

With other toolholding systems, micro creeping (where the cutting tool moves slightly) can occur and causes the tool to pull out of the holder. Prior to Safe-Lock™, the only solution to this problem was using side lock, but side lock is terrible for balance and runout accuracy. Safe-Lock™ is an EDM form in a shrink fit holder. So, when you shrink the holder to insert the tool, you engage the Safe-Lock™ form which includes the grooves on the back end of the cutting tool and an EDM form shaped as a pin in the holder. It is the only system that provides shrink fit accuracy and absolute tool security.

2. How does shrink fit technology work and what are the benefits for machine shops?

The shrink fit system heats the holder so that the cutting tool is inserted, and then the holder cools down in 30 seconds. Through this, the holder grips the cutting tool 360 degrees around the shank on multiple planes (unlike Weldon flat holders). This increases gripping torque that prevents chatter during roughing or finishing operations.

3. How important is tooling balance in the manufacturing world?

Unbalanced tool assemblies create centrifugal force which causes vibration to occur. Vibration can only go two places: down through the cutting tool and onto your part (which decreases the surface finish quality and cutting tool life) or up into your spindle (which can be detrimental to the life of the spindle bearing). Without balancing, the only option for machinists to get better surface finish and longer tool life would be to slow the machine down which decreases productivity and uptime. By balancing a tool assembly, you can run the machine faster, longer and create high quality parts with better surface finish.



4. How does a presetting machine help a machine tool operator?

Presetting allows machinists to check runout, height, diameter and critical dimensions of the cutting

tool itself outside of the machine tool. Without a presetting machine, operators have to manually measure the tool in the machine which takes a lot of time. We found that it took 20 minutes to preset five tools in the machine tool while a presetting machine took only 2.5 minutes to measure the same tools. Any machinist knows that 20 minutes of downtime in the machine lowers productivity and, in turn, costs money.

5. How do shrink fit, balancing and presetting work together?

Shrink fit ensures the best runout accuracy, balancing tool holders allow them to have as little vibration as possible, and presetting offline maximizes machine run time.

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