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Pushing tools turns into savings

Pushing durable tools to their limits may be routine in turning standard metals, but at Slabe Machining Products in Willoughby, Ohio, the practice works for improving efficiency when cutting high-temperature alloys such as Inconels, Waspalloys, and others. Gains in cutting tool edge-life and faster operations save the company \$70,000/yr in turning costs alone.

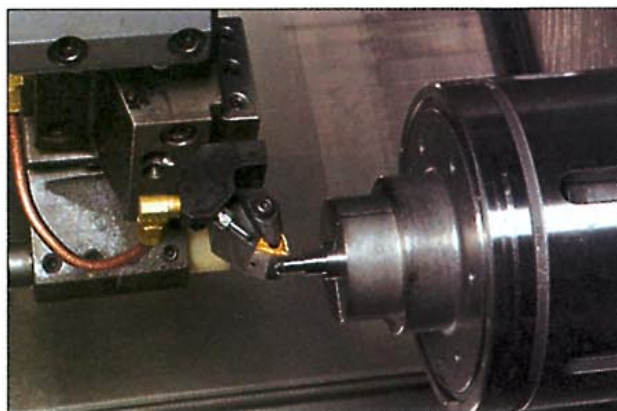
Jeff Hogya, former Slabe tool engineer and now Ingersoll Cutting Tools employee, contends "when turning tough-to-machine metal, shops shouldn't be so dazzled by longer edge life that they forget to push material-removal rates.

Machining profit comes more from saving time than preserving edges." This is why during an

assignment at Slabe to improve turning efficiency on high-temperature alloys, he chose five of the shop's highest-volume jobs to test several available cutters before selecting Ingersoll's TaeguTec tooling.

The first test involved a 1.560-in.-long cut turned at 175 sfm and 0.008 ipr in a Waspalloy stator part. Edge life increased from two pieces to 12, and raising the cutting rate to 185 sfm and 0.009 ipr only dropped edge life to 10 pieces. This still produced a total five-fold gain in edge life and a 12% increase in throughput.

On the second test piece, an Inconel 718 antirotation lug with a 2.180-in.-long cut, turning at



Slabe Machining Products pushes Ingersoll's TaeguTec tooling to its limits when turning high-temperature alloys.

165 sfm and 0.007 ipr boosted edge life from seven to 27 parts. Cranking up to 175 sfm/0.008 ipr generated a 13% increase in throughput with an edge life of 25 parts.

For another Waspalloy part with a 1.560-in.-long cut, roughing at



TaeguTec tooling delivers long edge lives and fast operations to save Slabe Machining Products \$70,000/yr in turning costs.

155 sfm and 0.0065 ipr with the Ingersoll cutter increased edge life from 15 to 24 pieces, and finishing at 165 sfm/0.003 ipr upped life from 15 to 50. Slabe couldn't raise the cutting rate any higher for this

part because it was a two-spindle operation and the other spindle governed cycle time.

The fourth test part, an Inconel 718 turbine component with a 3.280-in.-long cut, experienced increased edge life from six to 10 pieces during roughing and 10 to 40 for finishing. Finishing, originally run at 165 sfm and 0.002 ipr, rose to 180 sfm/0.003 ipr at a 0.008-in. depth-of-cut for a 60% gain in throughput — stemming from shorter cycles and fewer stops to index.

The fifth test job ran on a Citizen M 32 Swiss-type machine and involved an Inconel 718 pin with a 0.625-in.-long cut. Edge life jumped from 10 to 45 pieces/edge, significant because the machine took five min to index.

Ingersoll Cutting Tools

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