Getting off the 'regrind grind' merry-go-round

Several alert auto parts makers have found a way to avoid the "regrind grind" associated with solid carbide drills in high-volume drilling operations. They've switched to alloy steel drills with replaceable, coated carbide tips. As a result, they've pared back tool inventories and eliminated outsourcing costs for recoating and regrinding. More important, they've gotten rid of the logistics hassle of shipping, tracking and receiving reconditioned tools. Most manufacturers have also reported faster holemaking and lower scrap rates, leading to much lower drilling costs.

Two cases of successfully ending the "regrind grind" are:

- On automotive drive train flanges, Global Gear & Machining reduced drill inventory from 600 pieces to just 20 drill bodies and a supply of replaceable points. Savings: more than $150,000 a year all told. Global Gear does 13 million drilling operations on four million holes in 300,000 auto parts a year.
- An auto brake plant in the southeast eliminated all drill regrinding costs and the regrind "float" by making the switch, and gained 18 percent faster holemaking throughput as well.

Both companies achieved their savings in time, equipment, and money by switching from solid carbide drills to the replaceable points of Qwik-Twist drills from Ingersoll Cutting Tools, Rockford, IL.

At Global Gear, Qwik-Twist replaceable point drills dramatically reduced drill inventories in production drilling of auto parts.

Better answer for high volume drilling

"Regrindable solid carbide drills may cut faster and last longer than HSS drills, but on high-volume work the associated reconditioning cycle can become a real grind," says Bob Jennings, Ingersoll drilling product manager. "Depending on your schedule and the reconditioner's turnaround time, you may have to own six drills just to keep one of them up and running."

"Solid carbide drills certainly have their place," adds Jennings. "But in a high-volume operation, the replaceable-point drill is the better answer. It eliminates all the logistic baggage associated with reconditioning."

Global, close up

In its 24/6 operation running drive train flanges, Downers Grove, IL-based Global Gear regarded the regrindable

At Global Gear, a single Qwik-Twist drill (right) took the place of all the solid carbide drills shown on the left.

drill's four week reconditioning cycle as a very un-amusing merry-go-round.

Making the flanges requires 16 drills in active use per shift, assuming the drill lasts a full shift. "Do the math," says Enrique Saldaña, Global Gear product engineer/safety director. "Suddenly we're owning—and shuttling—600 drills between here and the reconditioner to maintain uninterrupted production." Failures on the reground drills averaged one per shift, creating a scrap problem as well as a work stoppage and extra tool expense.

Naturally, Global Gear tested the replaceable-tip drills before committing. Results showed 40 percent faster holemaking on average and edge life that exceeded a full shift. Assuming these rates and once-per-shift point changes, Global Gear projected a $125,000 hard annual savings simply from eliminating inventory and reconditioning costs, plus another $42,000 from the higher cutting rates. Naturally, they converted to Qwik-Twist drills as a drop-in replacement. No other process or tooling changes were needed.

Savings abound

In practice, tooling purchase costs dropped from $38,000 to about $4,000 a year, while reconditioning costs dropped more than $90,000. Global Gear also noticed two unexpected benefits that compounded their savings. First, unscheduled, mid-shift drill failures simply disappeared. Second, due largely to the higher penetration rates and fewer unscheduled stoppages, throughput increased an additional five percent. These factors combined to save an additional $38,000/year.

In the brake-rotor application, the partsmaker's original drivers for changing were to eliminate drill regrind/recoating costs and reduce the tooling inventory float to cover drills in transit. The changeover accomplished that and more. Tool life also rose from 15,000 to 35,000 holes and drilling cycle time dropped by 15 percent. Aggregate savings were in the low six-figure range.

"Quite simply, replaceable-point drills in high volume operations shrug off all the hidden ownership costs of regrindable solid carbide drills," says Ingersoll's Bob Jennings. "The drill bodies need no maintenance whatsoever, and the replaceable tip change, done in-house, takes just seconds. All the shipping and handling costs go away along with the reconditioning costs."

Anatomy of the replaceable-tip drill

Introduced in 2000, the Qwik-Twist drill has made the greatest impact replacing solid carbide drills in high-volume drilling operations. Getting off the reconditioning merry-go-round creates dramatic reductions in tool inventory and reconditioning costs. The reusable drill body is made of alloy steel for toughness, shock- and impact-resistance. Only the replaceable point is coated carbide. Removing and replacing a point is a 20-second operation. The operator locks the insert in place with the quick 90-degree twist of a key tool, much like an Allen wrench handle. Points lock in place with ±0.002" axial-length repeatability, eliminating the need for touching off after each point change.

Points are self-centering and available in geometries for either general-purpose or cast iron drilling. Diameters cover the range from 0.268" to 1.020" (6.8 to 25.9 mm), in 0.004" (0.1 mm) increments. Bodies are available in 3:1, 5:1 and 8:1 length-to-diameter (L/D) ratios, all with through-the-tool coolant delivery. To further reduce tooling inventories, one body can accommodate up to 10 different point diameters. **Ingersoll Cutting Tools, www.rsleads.com/506tp-230**

Changing the replaceable coated-carbide tip on the Qwik-Twist drill can be done in-house in just seconds.