TIPS Metal-cutting

Solutions to some common threading problems – directly from the Metal-Cutting Technology Guide from Sandvik Coromant:

Control of Chip Formation

Turning with high-pressure coolant means improved chip control. The laminar jet accurately directed at the cutting edge with the fixed-nozzle solution of CoroTurn HP produces a hydraulic wedge between chip and insert, reducing the shear plane angle through the force of the jet acting on the chip. The wedge reduces the tendency for built-up edge and the jet helps to lift the chip, thereby curling and breaking it more rapidly. Also, the cooling effect on the chip helps to make the chip more brittle and easier to break.

A marked improvement of chipbreaking in turning is achieved with high-pressure coolant in all workpiece materials characterized by troublesome chip formation. This results in a dramatic effect on machining security, through less risk of swarf entanglement, machine stoppage to clear chips and the amount of operator supervision needed.

Control of Heat Generation

At today's high machining rates using modern cemented-carbide indexable inserts, if coolant is applied conventionally into the machining zone with temperatures up to a 1,000° C. instant evaporation takes place. This then leads to the formation of a pressurized vapor zone which prevents the effective flow of low-pressure coolant to reach the cutting edge. One answer to this is dry machining which does away with the costs of coolants altogether, as is often recommended in milling operations.

However, some of the more demanding materials are best machined by applying coolants because of the heat generated. If strategically applied, using well-directed, high-pressure jets, coolants can be advantageous in several applications by reducing the length of contact between chip and insert, and consequently, the heat generated.

The temperature generated when machining titanium and heat-resistant super alloys is high, mainly due to the high strength and poor thermal conductivity. The heat is concentrated due to the very highly sheared chips with a short contact length between the chip and the rake face — this contact zone is generally only half that of steel.

Effectively cooling the machining zone is today an easily applied means with which to minimize tool wear, prolong tool life and provide potential for higher cutting speed.

Clairco Tool Co.
Giving you the edge...always
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Steve Griswold
Owner

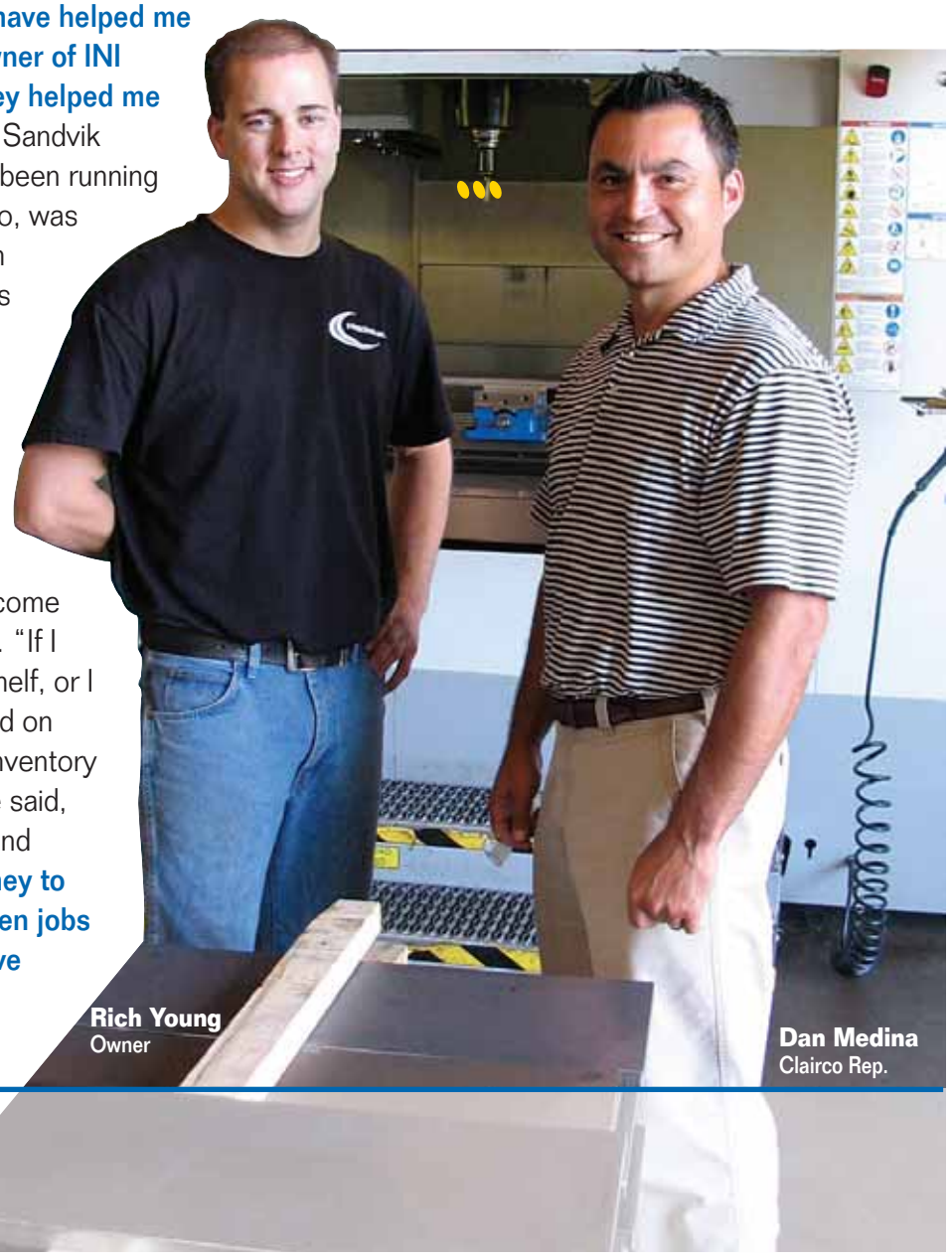
Giving you the edge... always

INI Machining Inc., East Moline, Ill.

Ask Rich Young why he sources his tooling from Clairco Tool Co., and the answer is simple – Clairco has been a part of his three-year-old shop from day one and he credits the tooling distributor with helping his successful company launch. **"They have helped me out tremendously," said Young, 33, owner of INI Machining Inc. in East Moline, Ill. "They helped me get started here."** Young has preferred Sandvik Coromant tooling for as long as he has been running machines, which up until three years ago, was in someone else's shop. He never even considered switching when launching his own business.

"I'm loyal to Clairco and Sandvik. Everybody is great to deal with," Young said. "I won't even talk to other salesmen." It is customer service that sets Clairco and Sandvik apart, he said. "Whenever I have a job come up, I always consult them first," he said. "If I need something, they've got it on the shelf, or I get it the next day. They are always good on delivery." Keeping a significant tooling inventory is cost prohibitive for the small shop, he said, proving Clairco an invaluable resource and partner. **"Because I don't have the money to have every single tool on the shelf, when jobs come up, and I'm in a rush for it, they've got it,"** Young said.

He continued to hammer home his customer service satisfaction. "I know I'm a small shop," Young said. "And they give me big shop prices and service. They treat me as good as they would treat the [Rock Island] Arsenal. "I don't want to sound corny, but it's true. I'm loyal to Clairco. I won't go anywhere else."



Rich Young
Owner

Dan Medina
Clairco Rep.

SANDVIK Coromant

Machine
Tool Design

The choice of machine tool plays a vital role in successfully undertaking hard part turning. Most machine tool builders currently offer models specifically designed to provide optimal performance for the process. Whether contemplating a new investment or analyzing whether a current asset would be suitable for the task, there are several factors to consider.

The base construction of the machine will significantly influence whether it can maintain the rigidity necessary for the process. A cast iron or cast iron reinforced base will provide the best stability.

Turret construction will also help to determine machine suitability for hard part turning. Ideally, a manufacturer would look to a very rigid turret setup with an integrated modular toolholding system, which helps to minimize vibration by reducing tool overhang. To optimize performance, this integrated toolholding system should incorporate holders that completely surround the tools, as opposed to relying on two center bolts to hold tools in place.

Last, depending upon the specifications of the parts to be machined, it may be prudent to invest in a machine with a tailstock option. For parts that extend from the chuck more than four times their diameter, a tailstock will likely be necessary to maintain the part stability needed to achieve consistent results.

Sandvik Coromant's CB7035 CBN grade uses a ceramic binder in conjunction with a design that combines a mechanical interlocking shape with traditional brazing techniques to increase insert strength.

SANDVIK Coromant

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Pressed for time?

Learn with online course

Available to Clairco Tool customers who are too busy to get away from work for a course, Sandvik Coromant now offers the basics of metal cutting in an online, home-study course. Useful for both beginners and experienced workers who want to brush up on some fine points – is based on the textbook, **Modern Metal Cutting: A Practical Handbook.**

To find out more – or to register – ask your Clairco Tool representative.

November

Nov. 15 -
Titanium Machining Level III
8:00 a.m. - 5:00 p.m.
@ Sandvik Coromant - Schaumburg, IL

Nov. 16 -
Titanium Machining Level III
8:00 a.m. - 5:00 p.m.
@ Sandvik Coromant - Schaumburg, IL

Nov. 17 -
Titanium Machining Level III
8:00 a.m. - 5:00 p.m.
@ Sandvik Coromant - Schaumburg, IL

Nov. 18 -
Titanium Machining Level III
8:00 a.m. - 12:00 p.m.
@ Sandvik Coromant - Schaumburg, IL

December

Dec. 6 - Metal Cutting Tech.
8:30 a.m. - 5:00 p.m.
@ Sandvik Coromant - Schaumburg, IL

Dec. 7 - Metal Cutting Tech.
8:30 a.m. - 5:00 p.m.
@ Sandvik Coromant - Schaumburg, IL

Dec. 8 - Metal Cutting Tech.
8:30 a.m. - 5:00 p.m.
@ Sandvik Coromant - Fair Lawn, NJ

Dec. 9 - Metal Cutting Tech.
8:30 a.m. - 12:00 p.m.
@ Sandvik Coromant - Schaumburg, IL

Joni Lange

We are pleased to introduce Joni Lange as the newest member of the Clairco Tool Co. team. As our Administrative Assistant, Joni is often the first person our customers talk to, and plays an integral part of our customer service efforts, and quarterbacks much of our inter-office communication.

Joni has been married to husband Steve for 33 years, and is the mother of two daughters – Ashley Patterson, who is married to Joey Patterson, and Stacey. The Quad-City native loves family and friends, the outdoors, swimming, baking, flowers, gardening, and the family cat Lili.

The people-first atmosphere in the Clairco Tool office has made the transition an easy one, Joni said. "The people here are like family," she said. "There's so much teamwork. They're patient with all my questions. They're just amazing people. It's everything I could have asked for, and more. I'm very excited to start this new adventure."

It's a wrap

Steve Griswold and the Clairco Tool team attended the NMCA World Street Finals at Lucas Oil Raceway Oct. 6-9 in Indianapolis, IN. A huge facility with all-paved pits and terrific local accommodations greeted them. It was the perfect venue to celebrate the end of the NMCA season. Fans, drivers and their 460 cars were there. See for yourself at www.nmcadigital.com/events!

2005 Corvette Coupe

6.0 Liter, 900 HP, ¼ mile: 9.23, 147.5 MPH, QA1 Shocks, NGK spark plugs, ATI Super Damper, AEM Meth Kit,... Advanced Engine Management Inc., Comp Cams, Callies Crankshaft, Callies Rods, Diamond Custom Pistons, Total Seal Piston Rings, Autometer gauges, Bowler Transmissions, Yank Torque converter, Dynotech Differential, Pro Charger Super Charger, Mobil 1 oil, Hoosier Slicks. Visit our website, www.claircotool.com, and see the car in action.