

HIGH SPEED TOOLING + DRILLING + FINE BLANKING

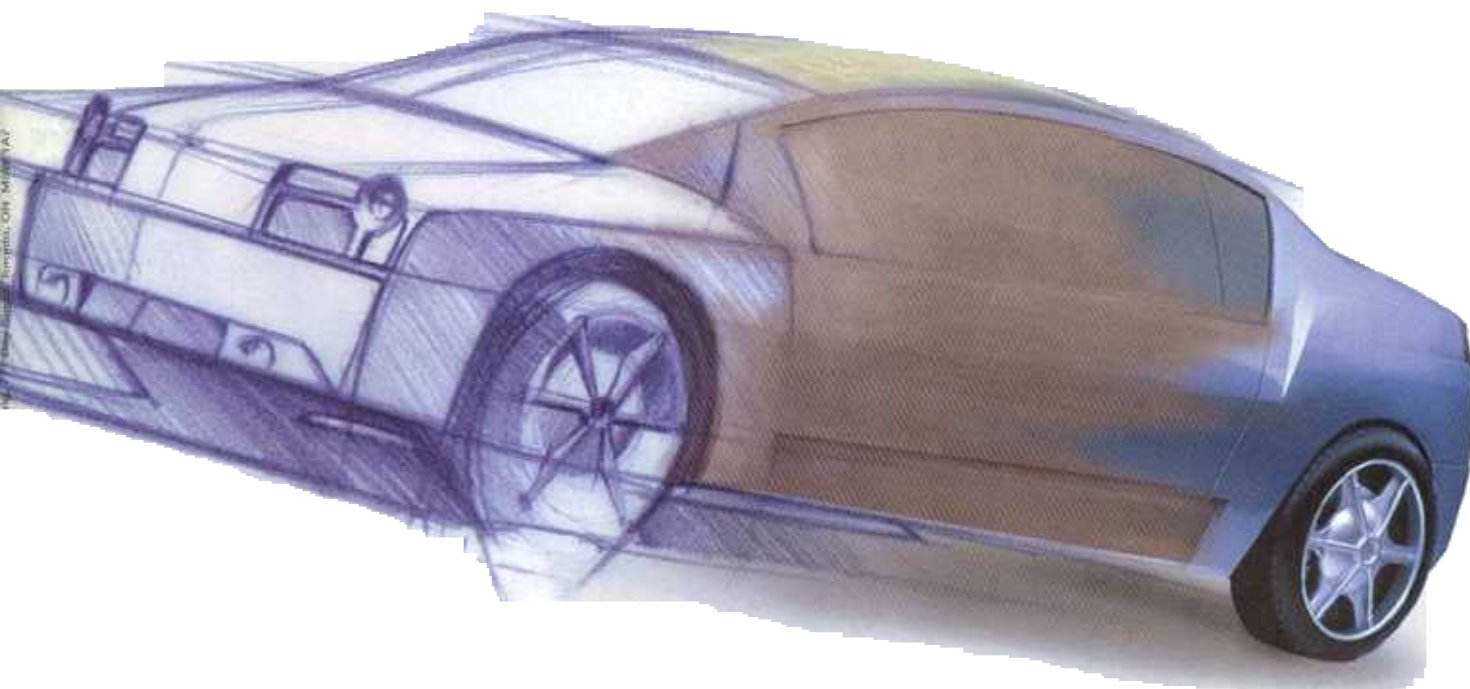


CANADIAN MACHINERY AND

metalWORKING

MACHINE TOOLS : FABRICATING TOOLING WELDING CANADA

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Racing to meet high-performance demands,
tier one automotive manufacturers are

MAKING CARS IN

OVERDRIVE



Getting the point of **HIGH-PERFORMANCE DRILLS**

Machinists have seen tremendous advances in high-speed machining and net-shape parts manufacturing methods over the last decade. Drilling, however, has lagged behind in technological development. The conventional drill point — which is the time-dictating cycle in machining — has been unable to generate chips fast enough, particularly with high-speed steel cutting edges and high-impact linear edge geometries.

Thankfully, tool manufacturers have developed a variety of application-specific drill point geometries that have successfully overcome this costly challenge. These next-generation drills are better known as high-performance drills. Some examples follow:

- G-drills with multiple steps provide high-pressure coolant through the tool, while allowing burnishing operations to be completed in the same hit.
- Gundrills now have exacting geometries that allow predictable and reliable deep-hole drilling.
- MFD or multi-facet drill points use asymmetric geometries to provide excellent torque reductions in difficult materials, while dramatically reducing chip size.
- S-point drills provide radius form cutting edges with honed-edge carbide that provides excellent cutting tool life and high-performance characteristics.

Conventional drills do not pose an in-house maintenance constraint; however, high-performance drills have introduced a whole new challenge to the engineer — Who will

provide tool servicing?

After long delay, tool-grinding houses have upgraded to become regional centres. These full-service tool-grind facilities are now commonplace across Canada. Unfortunately, such shops now require significant investments in both labor and capital.

Due to the demands of just-in-time manufacturing, highly skilled staff is now required around the clock. The previous skill levels of grinders become undermined, as they must also learn and master new techniques, such as edge preparation for k-lands and honing and inspection

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techniques. A new breed of manager is also required. He or she must offer management, sales and applications engineering to the client.

The capital-intensive machinery often includes multi-axis CNC tool and cutter grinders that are preprogrammed with the tool manufacturer's geometries, including such industry names as the Aviak, Guhring RT100, Hertel TF, Koolcarb, Mitsubishi, Sandvik Delta, Sumitomo and the Titex drill points.

Automatic tool inspection is another upcoming requirement that allows complex geometries to be cer-

tified and, in some cases, even relayed back to the cutter grinder for auto compensation, allowing true closed-loop grinding to occur.

Lastly, automatic wheel dressers are becoming more popular as tool forms require sculpted wheels to generate specific performance-enhancing radii.

As regional service centres grow in size, they also will offer our domestic industry a valuable source for tool manufacturing. Until recently, carbide cutting tools were almost exclusively an imported commodity. It is now common prac-

tice for major aerospace, automotive, mould and tool and die clients to source locally for the factory's complete tooling needs.

High-performance drills are well proven and the metalworkers that implement them properly, while developing strict localized servicing policies, will reap healthy financial rewards.

That's the point.

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