

EDM + CUTTING TECHNOLOGY + NDT + TOOLING MANAGEMENT + ERP

CANADIAN MACHINERY AND

metalWORKING

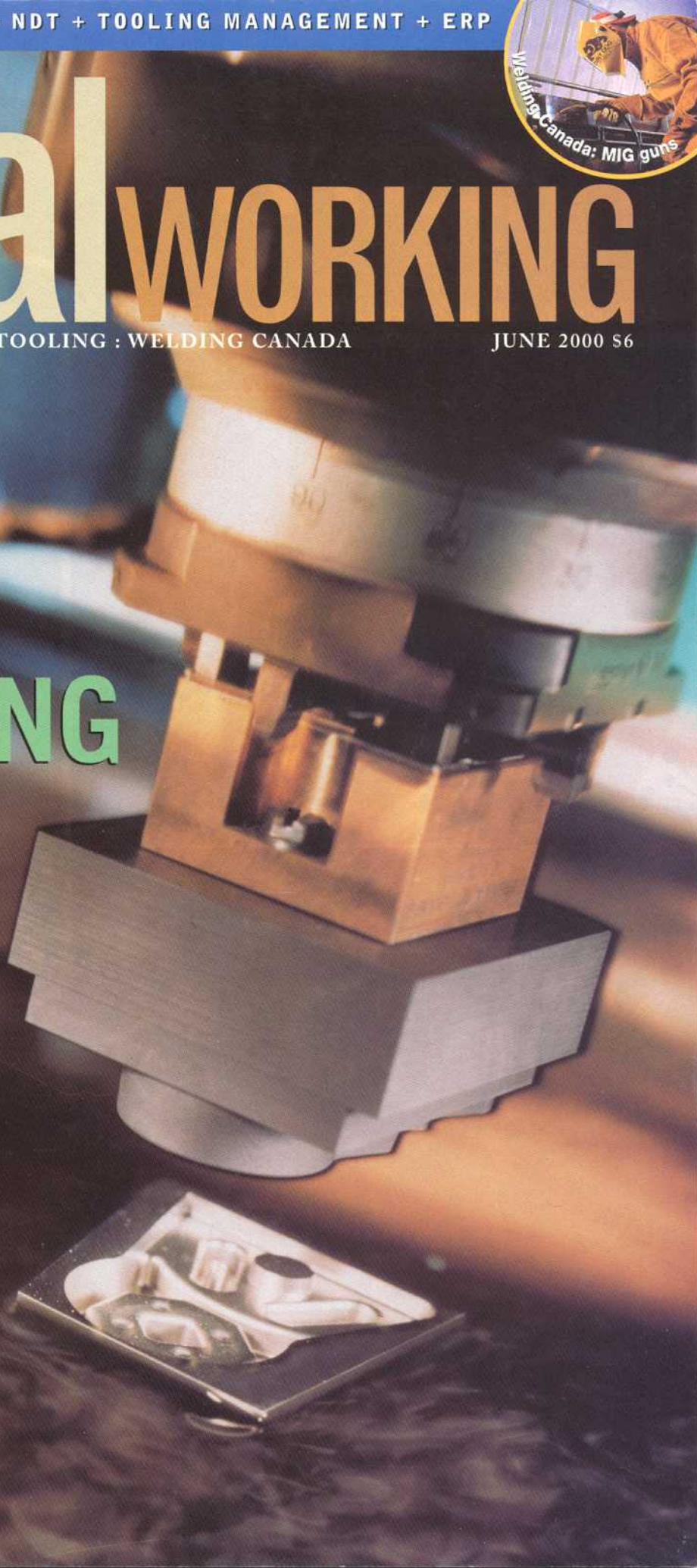
MACHINE TOOLS : FABRICATING : TOOLING : WELDING CANADA

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MOULDING THE FUTURE

WILL A SHORTAGE
OF SKILLED LABOR
KILL THE BOOM?





How to stay safe with your ear to the grind

Is the purchase of your next grinder more likely to bankrupt you or reward you for safe operating conditions?

The liability associated with operating conventional grinders has only come to light recently. In one noteworthy case, an operator was maimed by faulty guarding. He sued both his employer and the machine tool builder for a sum sufficient to bankrupt the builder.

For many years, the biggest challenge facing grinders had been the safe and easy set up of workpieces. As a result, the open concept of grinders, with easy access to the

this problem with fully enclosed machine and wheel guarding, automated dressing and acoustical sensing of the process for infeed control without any operator exposure.

Even sticking of wheels is being addressed. Many operators have lost digits due to a mere slip of the hand with dressing sticks. Through petitions to OSHA, one manufacturer obtained approval for its spindle to rotate sufficiently (1,000 r/min. with an 8-in. dia. wheel), with the door open, allowing safe semiautomatic sticking.

To free the wheel's porosity, 600-psi scrubber lines are being added to

designs, grinders use high-powered electrostatic mist extractors that filter to an acceptable 0.05 microns or better.

Another area of concern in safety is electrics. Well-built grinders have also taken the electrician's safety into account. By separating the high and low voltage compartments of an electrical cabinet, the electrician's safety is well-addressed. With stricter CSA and Electrical Authority enforcement coming into place, many old grinders may be deemed unsafe, forcing grind shops to reconsider their investment into newer, compliant equipment.

The last safety consideration for equipment that is often overlooked — but has been greatly enhanced with more recent generations of grinders — is ergonomics for long-term health. By optimizing loading conditions with heights, reaches and weights taken into consideration, back injuries may be minimized. Castings with rounded or recessed fronts for ease of access are becoming popular. They offer easy access to the process. Strain injuries have also been reduced by automating clamping mechanisms, including drawbars, tailstocks, and spindle locks.

As CNC grinder designs continue to advance, savvy buyers will need to focus on these latest technologies. This requirement will be driven by competition, technology and, most likely, by safety as well.

CMM

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wheel and workpiece, was paramount. Unfortunately, there was a serious tradeoff: operator safety was jeopardized. How often do we hear of operators "putting their ear to the grind" or see them "watching for sparks?" Obviously, this has put the operator dangerously close to the exposed grinding wheel and part.

As more grinding processes move toward superabrasives (CBN and diamond wheels), surface footage is climbing dramatically, and, with it, the risk of improperly balanced wheels. Fortunately, improper wheel balancing is no longer an issue because CNC-controlled in-process wheel balancing is readily adaptable to most CNC grinders.

Dressing procedures, in particular, are the biggest safety culprit. Modern CNC grinders have addressed

several CNC tool and cutter grinders — even creep-feed grinders. This development does not expose the operator to any unsafe conditions.

More often than not, superabrasive processing benefits by grinding with oil. Unfortunately, insufficient oil flow can lead to flash fires, posing a serious liability to many grind shops. Again, CNC grinders, with the ability to provide ample high-pressure coolant in fully enclosed environments, minimize this threat. As a further safety precaution, many shop managers have added automated fire suppressors with the new generation of enclosed machines.

Effective processing of hazardous materials, such as carbide, is another benefit associated with modern CNC grinders. With fully enclosed

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