Welding Canada: Resistance

CANADIAN MACHINERY AND

metal WORKING

MACHINE TOOLS : FABRICATING : TOOLING : WELDING CANADA   AUGUST 2000 $6

IMTS
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YOUR PREVIEW
OF THE LARGEST
IMTS EVER

Are you prepared for cyber grinding?

Does your CNC grinder have speech recognition software? Does your grinder scan your operators' retina for access verification? Does your supplier have the ability to coach your staff about service issues from global service hubs? Might your competitors and you share grinding technology?

These concepts may sound far-fetched, but the capabilities are here, and being implemented to compensate for the increasing use of today's multi-axis CNC grinders.

Touch-sensitive screens and speech recognition are going to be essential features that will reduce set-up times. Coupled with this will be password recognition through operator retina scanning. The security features will offer users customized access to suit the operator's skill set and authority level.

Much like the EDM field, self-compensating technology tables with material and application specifics will be a vital part of tomorrow's CNC grinders.

Wheel speeds, feeds and wear characteristics will all be predetermined via fuzzy logic. Clients will subscribe to Internet-based user groups, organized by machine tool builders and cooperatives, enabling global technology optimization daily via modem to central data hubs.

In order to accommodate smaller batch sizes for JIT, automatic fixtures with programmable chucks, tailstocks and steadies will also be increasingly important. Automatic loaders will have part recognition specific, to gripping and placement. During grinding, wheel dressing will be on the machine, even for complex multi-axis geometries. Acoustical sensing of parts and wheels will compensate for unknown sizing. Gauging of parts, via non-contact vision systems, will also be incorporated into grinders to assure quality.

As CNC grinders increase in capability, the ability to measure capacity and productivity will also have to grow. To facilitate this growth, grinders will require more complex software that can forward cycle times, capacity and productivity data to management.

It will be equally important to consider part data storage and

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exchange. As customers and suppliers standardize on part data formatting, read/write microchips with full print and process data imbedded, will be common place within parts that move throughout the supply chain. As the parts arrive at the shop, the data will be collected at a central repository and transmitted to production via infrared signals.

Assuming customers and suppliers use the same CAD/CAM, this data could be taken a step further to generate sales proposals that are based upon the cycle time, shop capacity and hourly rate. Ideally, these sales features will be offered through remote access, to verify machine capacity through wireless Internet devices such as Palm Pilots. This would allow spontaneous quoting and 3-D simulation of the actual grinding operation directly in front of the client.

Throughout the life of these very capable grinders, one concern will always ring true — service! Cyber service with head sets and ISDN lines will become standard with new grinders very shortly. Cyber service will offer 24-hour support from global hubs. Manuals will also be accessible over the Internet with continuous updates and client feedback via comment boards.

As our skilled labor force becomes less mechanical and more software dependent, dramatic changes will overwhelm machine tool manufacturers and employers alike. Efforts to make machinery and management less operator-dependent will require the collaborative efforts of the entire industry, much like the Human Genome Project. The shared knowledge of multi-national machine tool builders and clients alike, will require smaller players to settle for less profitable applications. Alternatively, the smaller companies may be forced to fight corporate behemoths with cooperatives, capable of reducing costs by pooling their diverse knowledge base. Is your company preparing itself for this inevitable progression? CMM

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