

issue seven 2010

the sharp edge

MX7 The next generation machine

Rigibore Punching to the top

ToolRoom® RN31 A must-have release

Southern Saw Soaring into a new venture

Special Projects Customised engineering

Punch Grinding A complete software solution

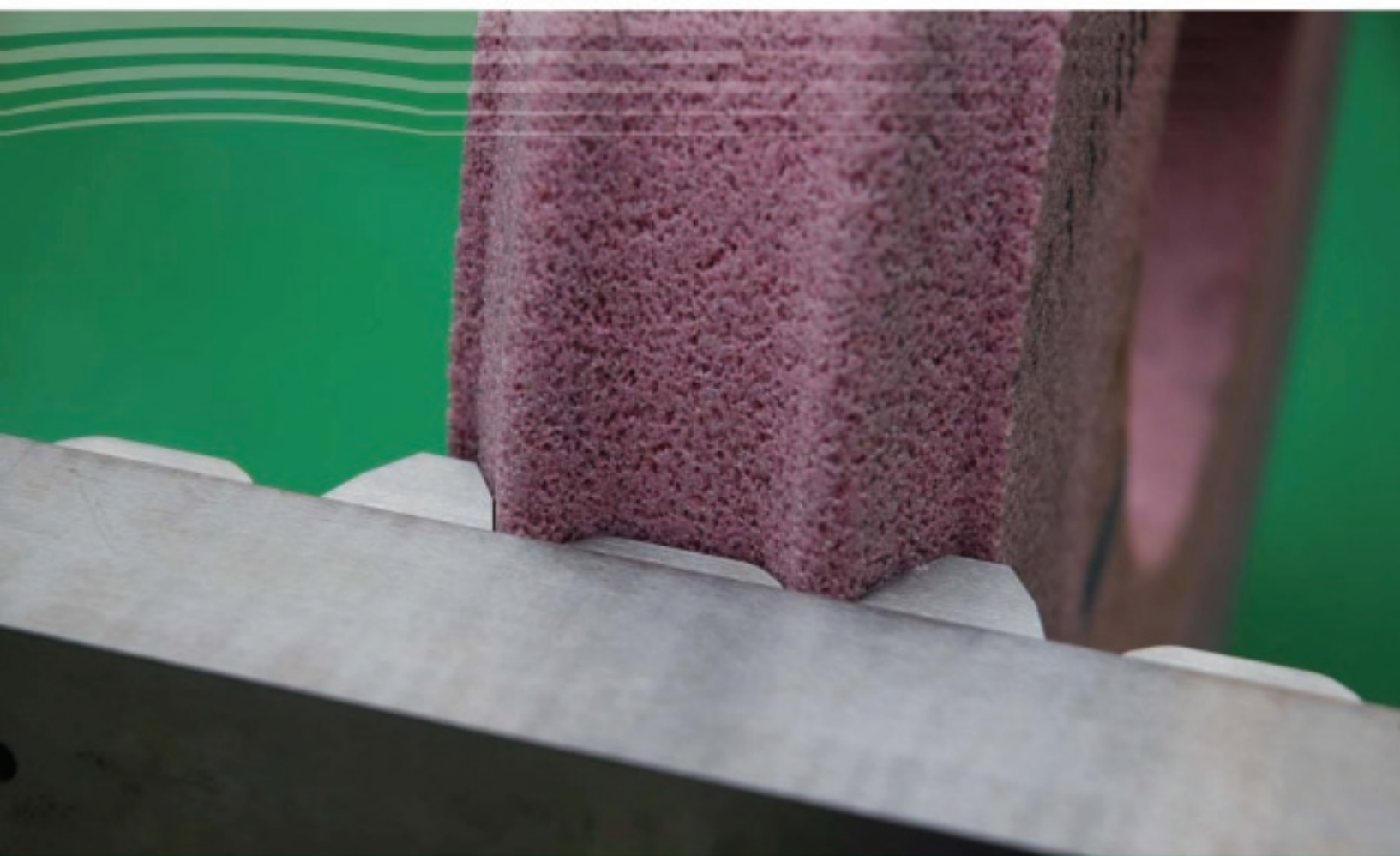
FastGrind An affordable CNC machine

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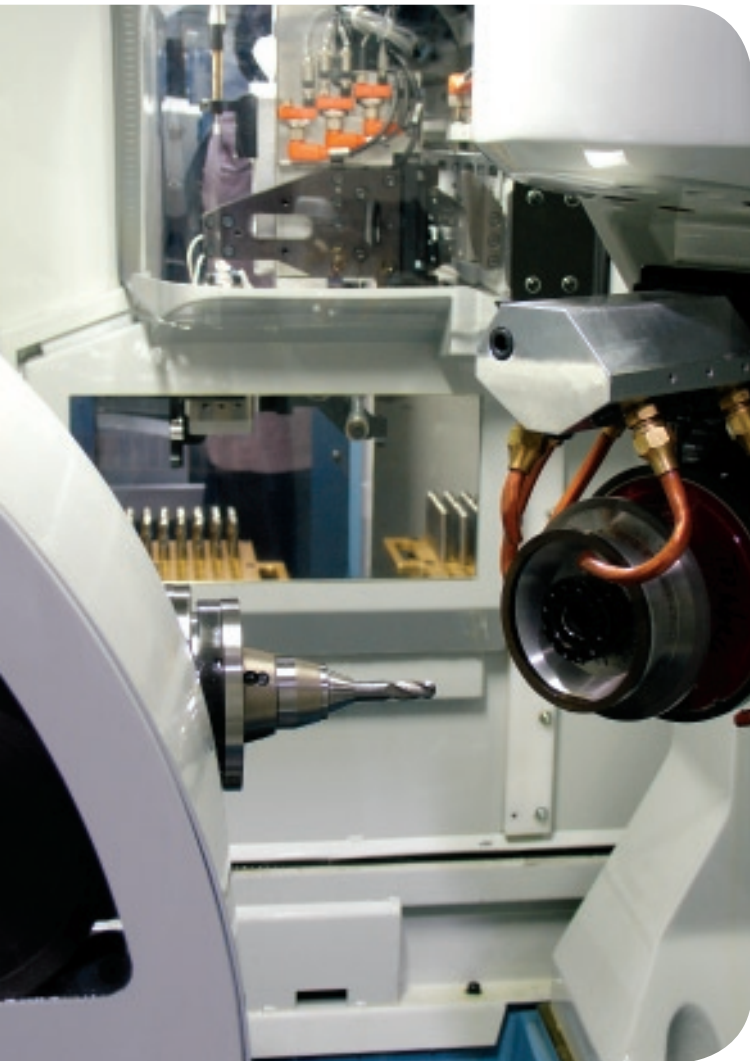
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Cover image: ANCA's new MX7 machine

See the story on page 4 about the new MX7 equipped with ANCA's latest innovative technology

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welcome



Welcome to the Sharp Edge 2010.

Last year's economic turbulence proved to be a challenging time for businesses around the world. At ANCA, we decided to use the downturn as an opportunity to look inwards and build a stronger company.

ANCA's name has always been synonymous with high quality. Our commitment to the highest standard possible was affirmed by the installation of the new Dixi DHP80 Jig Borer at the Bayswater plant in Melbourne. The DHP80, which is regarded as the most accurate machine tool in the world, adds to our existing Dixi installation ensuring capacity for across the board precision in our machines critical components.

In addition to plant improvement, we had a close look at our manufacturing process to find ways to work smarter. Our production team industriously adopted the 'Kanban' lean philosophy in targeted machine production areas such a spindle build and machine base manufacture, to achieve a more efficient process and increase production capabilities.

Tough times can also create new opportunities. To accommodate our customers' needs for more cost-effective CNC machines, our Research & Development team recently launched the MX7 and the FastGrind. The two machines, were built in response to different customer needs. MX7 for customers seeking efficient, high volume production, while the FastGrind offers an extremely affordable entry level CNC tool grinder.

Additionally, our Software Development team also unveiled ToolRoom® Release 31, which again raised the industry's benchmark in tool design and manufacturing software.

As we look forward to new challenges in 2010, which is anticipated to be a year of strong economic recovery, ANCA remains committed to providing our customers with world-class machines, services and support, and being the world's best at what we do.

Pat Boland
CEO

get lean



The spindle room after ANCA implemented its kanban manufacturing process, using a visual signalling system to trigger actions.



ANCA's endeavour for continual production improvement means our customers can reap the rewards from our efforts to work smarter.

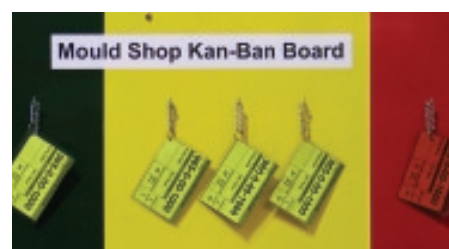
Last year, ANCA implemented the first phase of its lean manufacturing process called 'Kanban'. The Japanese words, where 'Kan' means visual and 'ban' means card or board, is a term associated with lean production. Kanban basically indicates a visual signalling system used to trigger actions. In the lean production process, Kanban enables the continuous supply of components so assemblers can have what they need, where they need it, and when they need it. To control the downstream activities, Kanban or the visual signalling system is used to activate the upstream activities.

The spindle assembly room was chosen for the Kanban pilot program at ANCA since the area was less critical and could be temporarily taken off-line from the production process. The result was encouraging with around 25% reduction in production time and 30% reduction in inventory.

Kanban is now implemented throughout ANCA's production including the machine base mould section and sub assembly areas. Further refinements have been made to each production area for ongoing improvement.

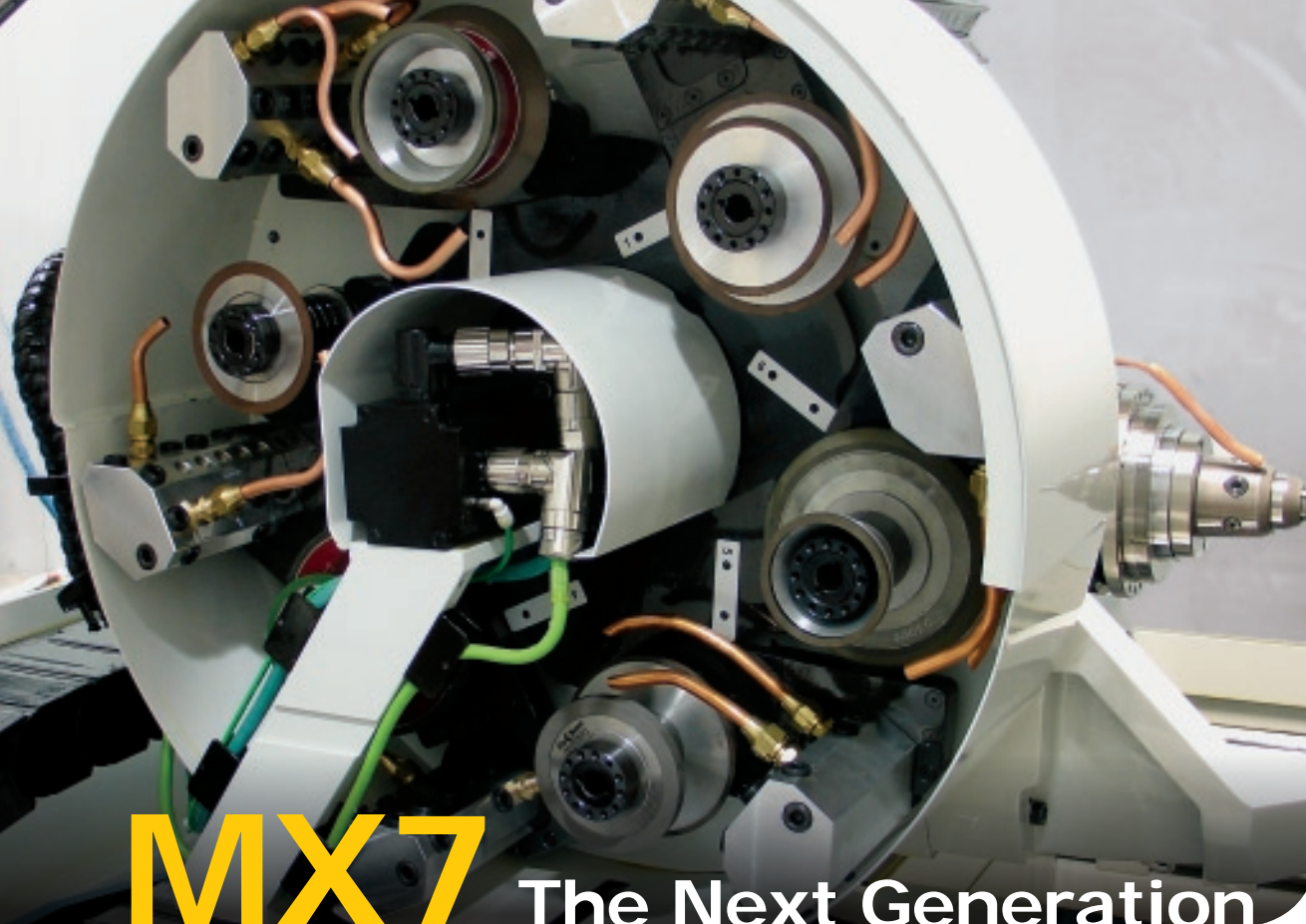
Since then, ANCA has seen significant improvement in its production output. Inventory which used to be stored in one large facility is now stored within each assembly section. This not only allows visible, quick and easy access to components but also provides visual indication when inventory is low.

ANCA's implementation of Kanban has placed great emphasis on ensuring the right amount of components are always in stock and the production output can be achieved on time. The leaner process and increased production capabilities will prepare ANCA for the demanding times ahead.



In the machine base mould shop section, the inventory is stored within the area for easy access and visual reminder when inventory is low.





The MX7's automatic wheel pack changer (cover removed for clarity) offers 10-second wheel change time and accurate, rigid mounting.

MX7 The Next Generation

Greg Perry and Andrew Ritchie report how ANCA MX7 becomes the Next Generation machine in Precision Tool Grinding.

Following strong customer demand and extensive market research, ANCA's research and development team has delivered another first class CNC Tool and Cutter Grinding machine that offers versatility with maximum productivity.

The ANCA MX7 is the next generation machine, specifically designed and built with the latest technology to suit the demanding needs of tool manufacturers. The MX7 design is based on the ANCA TX7 machine structure, which over the past 10 years has been regarded as the ideal production design. Proven TX7 qualities that are now part of the MX7 include:

- Outstanding rigidity and strength of machine axes
- Designed for heavy production grinding
- Thermal stability
- Optimised axis travel for reduced cycle times

Even though the MX7 is capable of grinding a wide range of tools varying in diameter and length, it is designed to focus specifically on the tool sizes that are in greatest demand covering tools

up to Ø16 mm (5/8"). Optimising the machine elements for this tool size range has enabled ANCA to minimise not only the machine footprint but also the price.

What makes the MX7 so unique is that it offers the power and flexibility of a large machine for the price of a small machine and still includes all the innovative features and benefits ANCA's customers have come to expect over the last 35 years.

During the MX7 concept stage, ANCA undertook extensive market research to ensure that current market trends and customer demands were met. As a result, the MX7 comes standard with a 6 wheel-pack changer, offering maximum production capability.

Since precise coolant delivery plays a key part in the grinding operation, each wheel pack has its own dedicated coolant manifold. The wheel pack and the coolant manifold are mounted together within 10 seconds, ensuring optimum coolant pipe set-up.

The 20kW (constant power-S1) permanent magnet HSK wheel spindle delivers outstanding performance across the entire 10,000 RPM range. This spindle type provides high torque at low RPM, which is highly desirable for carbide grinding. The wheel spindle also includes a special feature where it can be used as an axis (Q axis), enabling its rotary position to be accurately controlled. This feature precisely matches the orientation of the wheel arbor to the spindle every time the wheel is changed, resulting in accurate and repeatable wheel runout.

As with all ANCA machines, the MX7 comes standard with direct-drive technology, which means no belts or pulleys, allowing it to deliver superior positioning, accuracy and reliability. With speeds up to 3000 RPM, the direct-drive headstock (A-axis) can also be used as a wheel dresser. Dressing operations can be called up within the grinding program for truing or dressing the grinding wheel.

For companies looking to optimise their production output, the MX7 has a wide variety of machine accessories to help automate the manufacturing process. The integrated and flexible MLX loader provides high capacity storage allowing hours of unmanned operation. Pallet capacity ranges from 840 tools for Ø3 mm (1/8") to 154 tools for Ø16mm (5/8"). The loader uses only one gripper to take the tool from the pallet to the machine work holding. The loader is integrated into the MX7 machine structure, providing a very rigid assembly. This structural rigidity along with the single grip tool loading ensures accurate and reliable loading every time. The 10-second tool change time ensures the MX7 spends more time grinding over production runs.

When it comes to the grinding set-up and preparation, ANCA's CIMulator3D allows the MX7 operator to simulate the programmed tool path exactly as it would be ground on the machine. New tool programs can be verified for size, shape, machine collisions and even cycle time estimates. CIMulator3D allows continuous work flow through the machine by reducing development time and trial grinding.

ANCA's innovative iView is a precise tool measurement system that is ideal for precision tool grinding. It can be set-up for profile measurement and

compensation without having to remove the tool from the machine.

ANCA's industry renowned and user-friendly ToolRoom® software also offers a host of programming options from grinding standard end mills to unique and specialised tools. See Page 12 for more information about ANCA's newly released ToolRoom® RN31 software.

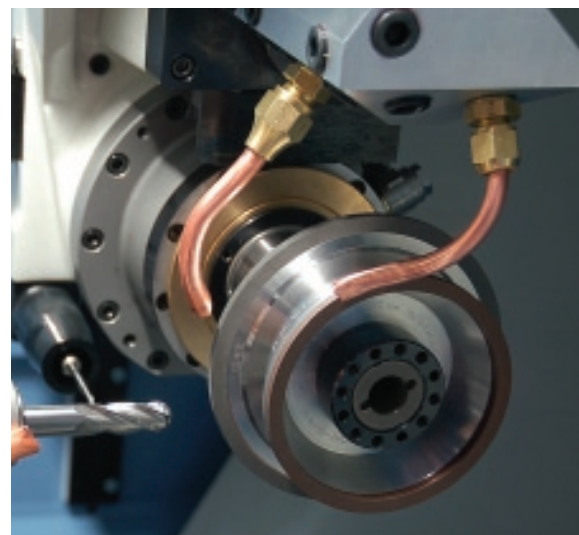
In light of challenging economic conditions, and an ever pressing need to remain competitive, the MX7 is meeting the needs of today's tool manufacturers. Superior levels of productivity, accuracy and technology are ensuring the MX7 takes its place as the next generation of CNC grinding machine.



Windows built into the loader ensure full view of its operation from the front of the MX7 machine.



The micro pop-up steady offers optimum tool support and setting control providing vertical, axial and yaw adjustment for excellent accuracy.



The 20kW power rating of the permanent magnet spindle provides high torque at lower RPM, particularly suited for carbide grinding.



MX7 at a glance (See Page 20 for technical specifications)

- 10-second tool change
- 10-second wheel change
- Production ready
- Wheel changer that stores 6 HSK 50 wheel packs for increased productivity and flexibility
- MLX loader for unmanned operation
- Permanent magnet spindle delivers constant torque across the entire 10,000 RPM range
- Off-line tool design and development using ANCA's ToolRoom® and CIMulator3D software
- Supported by ANCA's worldwide team of technical specialists from training right through to maintenance

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The Ebbco Evolution Series is a metalworking filtration system designed for precision machining and cutter grinding applications of carbide, tool steel, surgical metals, PCD and ceramics. This system conditions coolants and oils down to 0.5 micron, while maintaining constant temperature, avoiding thermal distortion.

The Ebbco filtration systems offers a high-capacity cartridge filter housing, with an easy to use hydraulic lid opening device, to accommodate up to eight-micron rated filter

cartridges. Each Cartridge is capable of holding up to 30 pounds of carbide sludge. A chiller incorporates a digital temperature controller which keeps the oil or coolant through out the machine tool at a consistent temperature.

Systems come standard with Ebbco's patented extended area filter baskets which serve as a prefilter or the optional high volume magnetic pre-filter for high speed steel applications. This system also incorporates a heavy-duty seal-less filter pump to avoid costly seal replacement and downtime.

For more information,

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punching to the top

a class **above** the rest

The Sharp Edge sent **David Arnesen** to Wisconsin to find out how Rigibore has used ANCA machines to help grind inserts to the highest of tolerances.

Rigibore Inc is a precision boring tool producer with an edge. Located in Mukwonago, Wisconsin, the US branch of UK-based Rigibore, has recently developed a very special capability.

"Our boring tools can be adjusted to the micron, so we wanted to be able to create very high accuracy inserts for them," said Anthony Bassett, Rigibore Inc president. "The closer tolerance the inserts can be the less adjustment necessary—it's almost like having a brazed tool."

Rigibore's customers include second tier automotive suppliers, small engine producers, and large off-road engine builders. "For the larger users, we produce special shapes and forms to do very specific things," Anthony added.

"We needed a machine that can produce small quantities quickly and which can operate unattended for larger batches. We approached ANCA for this project because

the software is user friendly," remarked Anthony. And that's saying a lot because Rigibore develops much of its own software for manufacturing.

"We thought we could grind inserts in a different way than they had been before. We had developed a range of inserts for the North American market, the production of which we had been outsourcing," Anthony explained. "With the ANCA grinder, we could bring the work in-house and assure ourselves that we could market ISO standard H tolerance (+/- 13 microns) inserts, one of the highest tolerances that can be ground.

"Today, with ANCA's application assistance, we are grinding consistently within 1 to 2 microns with our versatile ANCA RX7 and the iPunch software," Anthony noted. "It's amazing how the machine is holding that tolerance around the center of the piece." With superabrasive roughing and

finishing wheels, the company grinds the periphery of the piece and the chipbreakers for specific applications on its boring tools.

The RX7 is robot-loaded, providing Rigibore the ability to operate unattended. "During the course of the process development, we and ANCA learned quite a bit automating the production of very small pieces, from fixturing to robot handling," Anthony pointed out.

Originally developed by ANCA for grinding punches used in metalworking and tablet production, iPunch intelligently handles multiple steps by knowing the material already removed from the previous operation. By spiraling in from the initial shape to the final shape, iPunch ensures the wheel is always in contact with the part which eliminates any wasted time spent 'grinding air'. Reversal marks are eliminated during finishing. Different back tapers are easily produced by using the C axis to pivot the wheel position.



“We are grinding consistently within 1 to 2 microns with our versatile ANCA RX7 and its iPunch software”

“The iPunch software can grind in three axes so we can grind any shape we need to,” said Ken Kasten, Rigibore Precision Grinding specialist, “and we can control it easily within 1 micron. That was it for us. Plus, the software was easy to learn,” he added. “iPunch software moves the wheel in and out and up and down and it controls the C axis. This gives us a flatter edge.”

“Most customer parts come in as drawings,” Ken explained. “We design the parts in SolidWorks and then save it as a CAD file and import directly into iPunch. From there we can tweak it and

simulate the process to be sure we will produce what the customer is asking for,” he added.

With the implementation of iPunch, Rigibore has reduced cycle times 30-40%. iPunch operations can be integrated in to iGrind applications, offering Rigibore complete flexibility in grinding its inserts.

For Rigibore, iPunch opened the door to production of extreme tolerance inserts that other sources simply can’t touch.

“Our goal is to do more special inserts, and we feel we can do

that with the RX7, iPunch and our special fixtures,” Anthony said. “It has opened up new possibilities for us in grinding inserts. Any insert we have on our shelf whether it is CBN, diamond or carbide, is ground to H tolerance. And we can do it confidently with the RX7 and iPunch software. The combination gets us where we want to be, grinding special forms on inserts. Going outside for this kind of service would be unacceptable in terms of time and quality,” he concluded.

For an in-depth look at the iPunch software, see page 19.



“iPunch can grind in three axes so we can grind any shape we want to... easily within 1 micron”

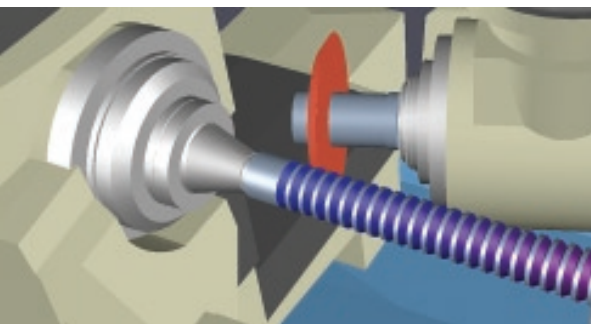


RX7 regrinding a cylindrical broach which is held between centres for total precision.

broach resharpening

ANCA's solution for a local automotive manufacturer and global exporter. *Greg Perry* reports the benefits.

To further enhance the RX7's capabilities, ANCA has released a new versatile and easy-to-use 'Broach Resharpening' package. This complete package consists of specifically designed software and tooling for the resharpening of both flat and round broaches.



During the Research & Development process, ANCA engineers worked closely with Toyota Motor Corporation Australia to ensure that the software had the required parameters to maintain all the important features and geometry of the broach.

The software comprises of two distinct operations: digitising and grinding. The digitising operation ensures that the teeth geometry is precisely identified and their position is accurately determined

regardless of the broach's condition and type.

The digitising operation can be performed by digitising one tooth only, and then each subsequent tooth's position is determined by an operator manually inputting the pitch into a user table.

Alternatively, the operator can choose to digitise all teeth on the broach to determine their true position. This approach is ideal for broaches with uneven wear. The OD and core depth of the teeth can also be digitised so the data can be used to ensure each tooth is ground to the correct depth. This data is very useful since the core depth is continually increasing over the length of a broach.

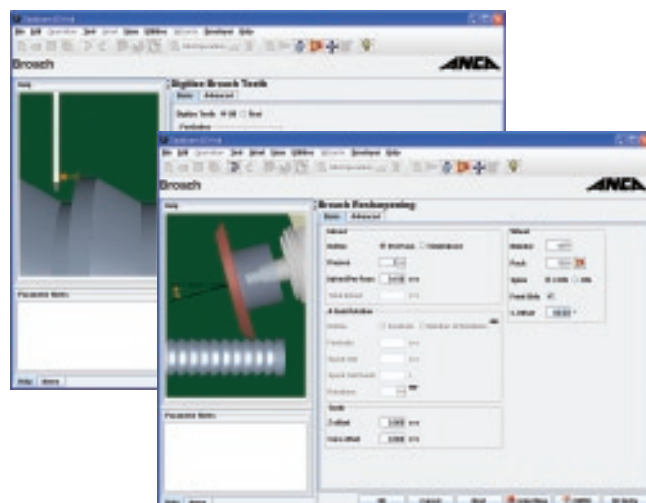
Once the broach geometry is digitised, the data is fed into the grinding operation page to set-up reference parameters such as depth of cut, number of passes, speeds, feeds and spark out.



Specific work-holding has been designed for both the flat and round broaches. Cylindrical or round broaches are held between centres to provide the rotation. The flat broach is mounted onto a fixture and supported by the same tailstock used to hold the round broach.

The maximum length broach that can be ground on the RX7 is:

- 400mm for a flat broach
- 385mm for a round broach



global commitment

ANCA's further expansion into the BRIC markets is marked by the opening of offices in Brazil and India. By *Andrew Ritchie*.

ANCA's further expansion into the fast-growing developing markets has seen the opening of two new offices in Brazil and India. This represents ANCA's ongoing global commitment, in particular to the BRIC countries (Brazil, Russia, India and China).

Both Brazil and India have shown increasing demands for ANCA's Tool and Cutter Grinding technology. It is therefore vital for ANCA to establish regional offices with dedicated sales staff and support engineers to serve the increased demands and long-term needs of our customers.

The ANCA Brazil office, located in Sorocaba, São Paulo, was opened in February 2006. Currently, ANCA Brazil services over 50 machines for more than 20 customers around the South America region. "Most of our customers supply cutting tools and equipment to various industries including automotive, manufacturing, engineering and medical," said Giuliano Gisoldi, ANCA Brazil's Application Engineer.

ANCA's newest office located in Bangalore, India, was opened in May 2008. Guruprasad Prashanth, ANCA India's Sales Manager believed the new office was well positioned to support the country's growing demand for CNC tool grinding machines.

"Bangalore has a strong manufacturing and industrial base including numerous heavy industries, aerospace, engineering and defence organisations. We certainly see a robust growth in the CNC market here," commented Guruprasad.

As the BRIC countries develop, ANCA's regional offices will continue to grow alongside its customers. ANCA's commitment to be the world leader in CNC Tool and Cutter Grinding technology is evident by its continued global investment and strategic expansion, not only with today's established markets, but also the developing and emerging markets of tomorrow.



Guruprasad Prashanth (RIGHT), ANCA India's Sales Manager demonstrating RX7's capabilities at the IMTEX Tradeshow in Bangalore.



Giuliano Gisoldi (LEFT), ANCA Brazil's Application Engineer conducting a training session on the TX7+.

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ANCA's latest industry leading ToolRoom® software offers a host of new features and enhancements to boost productivity and improve usability. By *Paul Bocchi*.

Since its beginning, ANCA has been committed to providing the most advanced and flexible tool design and manufacturing software packages on the market. ToolRoom® RN31 resolutely continues ANCA's commitment. With many new features and enhancements, it is undoubtedly a must-have release.

The design and manufacture of complex tool geometries demand software flexibility and ease of use, which have always been synonymous with ANCA's products. As tool designs become increasingly sophisticated, it is vital to have software that is up to the job. ToolRoom® RN31 expands the software's capabilities to define and grind custom tool geometries with several new features. This includes a new custom walk editor that enables users to enter custom defined geometry to achieve special or complex end-face features.

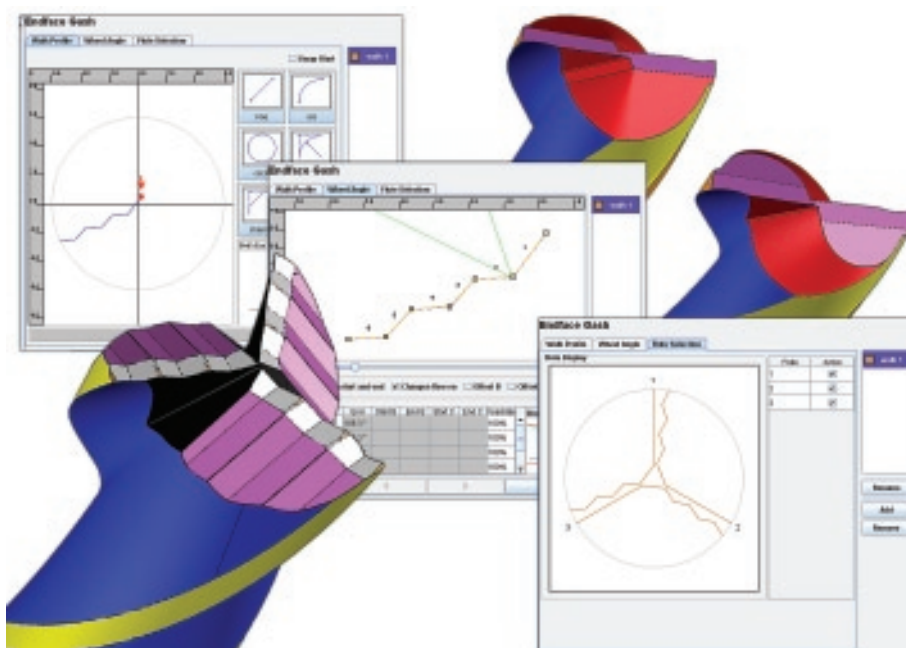
Ballnose tool manufacturers will greatly benefit from RN31's new layouts, 3D design-time graphics, and enhanced functionality for designing ballnose tools. Instant visual verification is achieved through the new 3D graphics which are dynamically updated as

parameter values are changed. In addition, RN31 will promptly provide feedback on any potential geometrical errors or grinding limitations during the design process.

The OD-finish eccentric relief grinding option has been improved to produce an accurate eccentric relief form using a new relief definition. For ballnose tools, the

operation now supports grinding of an eccentric OD and a facet relief ballnose in one continuous blended move.

ToolRoom® RN31 also makes it easier to achieve complex tool geometries with its new 'Tool Segments' feature, which essentially allows one tool to be modelled as a combination of two or more separate tools. This



The new Custom Walk Editor in ToolRoom® RN31 opens up a new range of end-face possibilities.

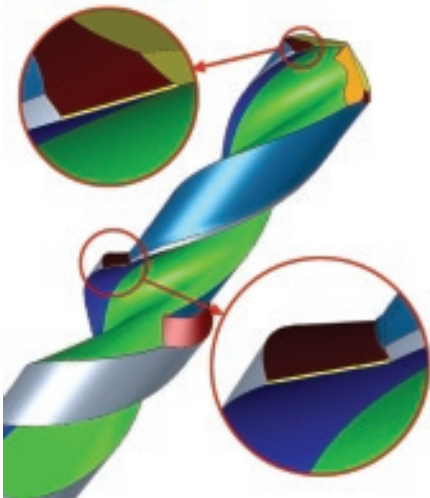
feature provides a perfect balance of flexibility and ease of use, allowing complex tools containing several diameter segments to be easily designed.

In today's high technology manufacturing environment, cutting-edge preparation has increasingly become a necessity, and subsequently, an important ingredient in the successful design of cutting tools. **ToolRoom® RN31** expands the cutting-edge preparation capability by introducing many new K-Land grinding features for drill points.

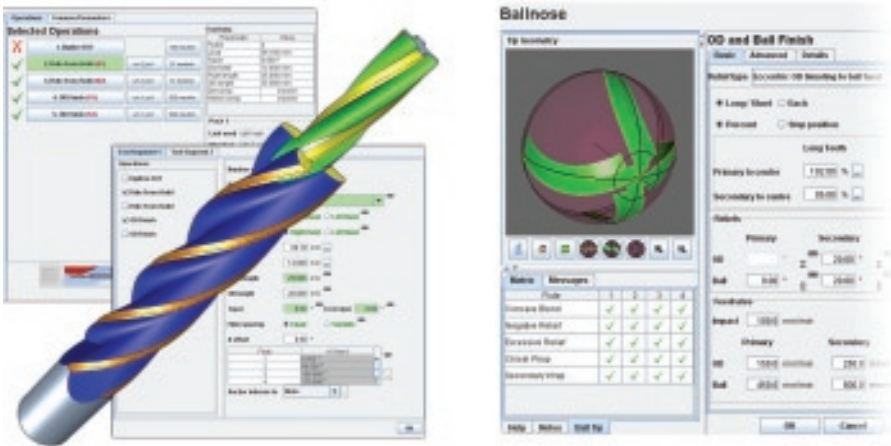
Additionally, new operations have been included to grind a K-Land edge on the rolled-chamfer and step sections on step tools. The new K-Land cycles for rolled-chamfer and step sections require no digitising. The geometry is calculated automatically to produce accurate K-Land edges.

Cycle time can be reduced via the new 'Auto-Approach' feature, which uses a smarter and more consistent approach moves between iGrind operations, eliminating the need to specify end-of-operation stop positions. For tools with several operations, the 'Auto-Approach' feature can provide significant cycle-time savings.

Usability has also been a major consideration for **RN31**, which features a wide range of new interface enhancements including tool search utilities, tool-file



New K-Land grinding operations allow accurate K-Land edges to be ground on the rolled step and chamfer sections of a step drill. Geometry is calculated automatically, regardless of flute shape, eliminating the need to digitise.

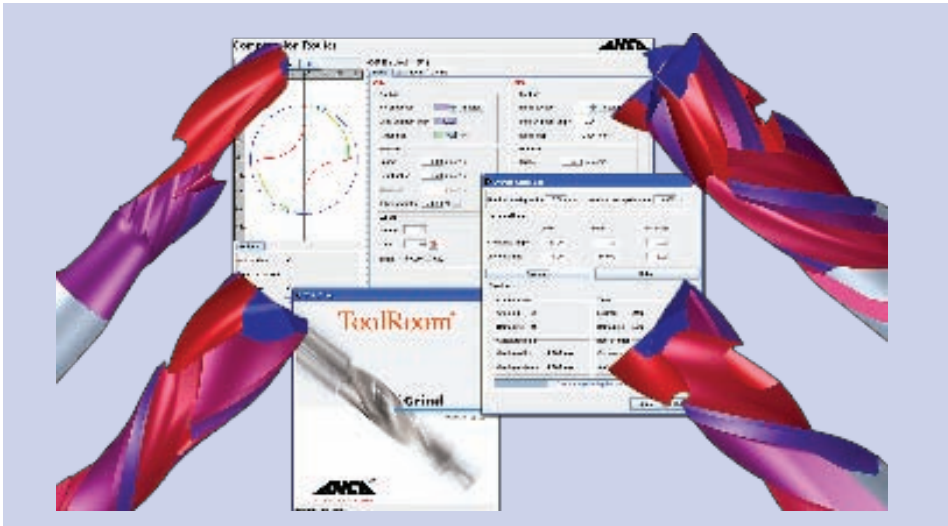


Left: A new tool to add to the toolbox. Tool Segments allows tools with distinct segments to be created easily, eliminating the complexity of breaking parameter links. **Right:** The enhanced Ballnose operation now features 3D design-time graphics and geometry checking for instant verification.

preview image dialogs, parameter change event logs incorporating an 'Undo' feature, improved menu structures and new P-Axis set-up options, just to name a few.

ToolRoom® RN31 is sure to please existing and new ANCA customers alike. Customers who are looking to upgrade can be

assured that RN31 is the most feature-rich software upgrade ANCA has released to date. This article only highlights a few major developments. To discover **RN31's** extensive options and functional capabilities, please contact your local ANCA branch for further information, demonstrations or trial licenses.



One of the many new developments in RN31 is the introduction of the new Compression Router software into iGrind.

The new software reaps all the benefits of the iGrind interface and significantly simplifies tool design by taking a smarter approach towards compression router geometry. For example, important geometric parameters such as overlap width and distance are specified directly. The fluting operations can then calculate the required parameters to achieve these targets.

Existing Compression Router users will find the new iGrind software a tremendous leap forward, benefitting from features such as design-time geometry displays within the operations, help images for all parameters, in-built calculators to achieve important geometric dimensions, and much more.

The new software takes all the guess-work out of the tool design process and is guaranteed to cut design times dramatically.



special projects

ANCA's customised engineering

ANCA CNC grinders are now being used to provide solutions to many processes. As *Duncan Thompson* reports, the solution was a combination of several factors.

At ANCA, we understand that today's businesses seek greater production flexibility and capacity. As a result, ANCA engineers have been working closely with our customers to design an increasingly broad range of precision grinding applications for ANCA machines beyond standard cutting tool grinding.

Special Engineering Projects

ANCA engineers can undertake special engineering projects to help customers find innovative and specialised grinding solutions for their manufacturing needs. Every project is different with unique requirements and machinery set-up. Therefore, the key to the project success comes from the close working relationship between ANCA engineers and our customers.

By developing an intimate knowledge of our customer's production process, ANCA

engineers can ensure that our customers' requirements are completely understood. Particularly in more complex applications, ANCA engineers often visit the customers' sites to understand existing processes, where improvements can be achieved and how to integrate these solutions to the ANCA machine.

Areas for Special Engineering Projects

There are three key areas where ANCA engineers can work with our customers on special engineering projects.

Automation

While ANCA's standard loaders can handle regular cylindrical tools, a special solution may be needed for over dimensional or odd shaped work pieces. ANCA engineers deliver tailored automation designs to suit specific customer needs. The advantages of customised

automation extend beyond using robots to load odd shaped work pieces. Additional benefits can be gained by adding peripheral equipment to the robot station, allowing it to perform other tasks. Washing stations, laser etchers, vision systems, polishing stations and interchangeable tool heads have been added to extend the robot's functionality and eliminate the need for these processes to be performed on another machine. This simplifies production planning and enhances flexibility.

Tooling

More often than not, a customised automation where a part is to be loaded with a robot will require special tooling, which can be as simple as special grippers and pallets, or can be extended to more complicated options such as special headstock tooling or work piece holding.

ANCA engineers can design specialised tooling to

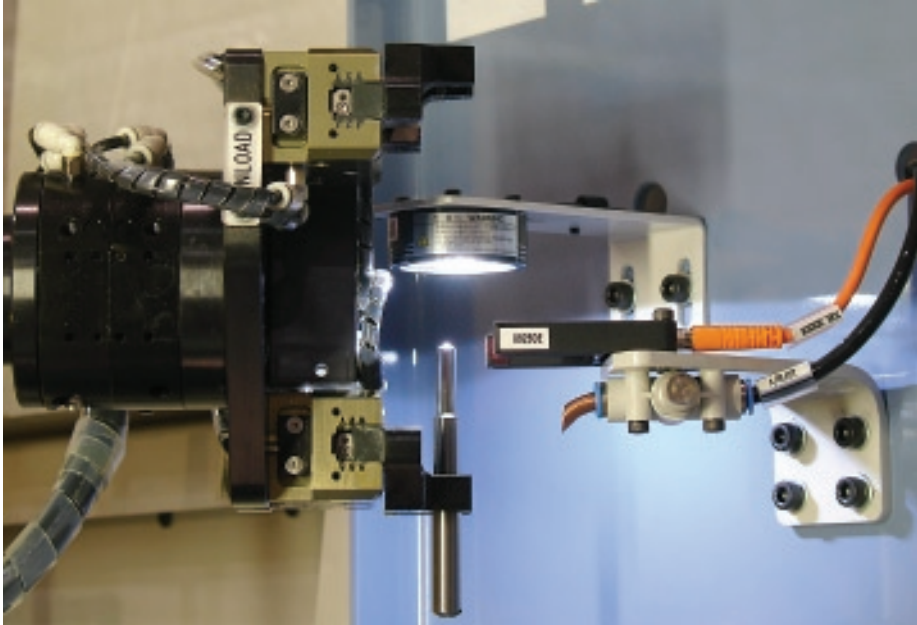
accommodate our customers' requirements ensuring seamless integration into the automated solution.

Programming

For custom programming for special engineering projects, ANCA iGrind software is specifically designed to allow easy implementation of special cycles that can run within a customised user interface. Additionally, for parts which are defined as 3D CAD models, ANCA engineers use a specially developed post processor for UG-NX CAM, allowing ultimate programming flexibility.

The 'Broach Resharpener Package', which was developed by ANCA engineers in conjunction with Toyota Motor Corporation (see the story on page 10), is just one example of ANCA engineers forming a strong partnership and collaboration with our customers to deliver a comprehensive solution to their special needs.

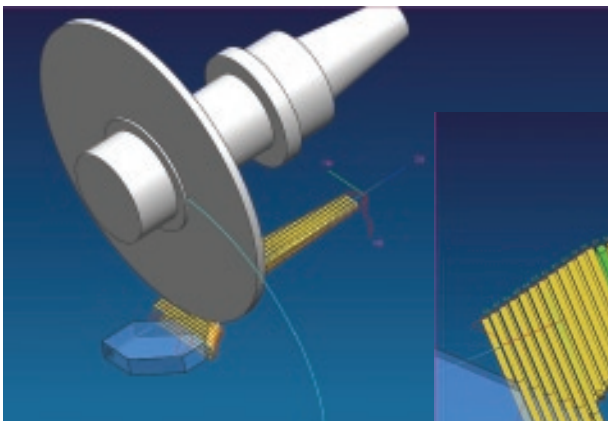
ANCA prides itself on facing the new challenges presented by industry. By working closely with you, our customer, ANCA draws on its depth of experience and expertise to deliver innovative outcomes that result in a stronger bottom line for your business.



Automation: A vision detection system was installed on a Fanuc robot loader to detect and orientate the internal coolant holes of the blanks. By removing the need to digitise in the machine, overall cycle times were reduced.

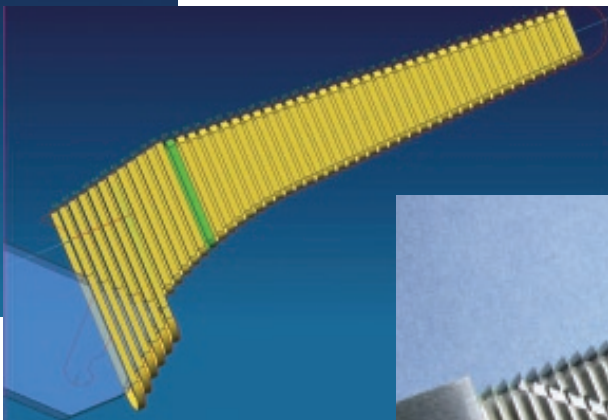


Tooling: Special headstock tooling was designed by ANCA's engineers to hold multiple tools at the same time to reduce load cycle time and increase productivity.



By importing a 3D part model into UG-NXCAM, engineers can use ANCA's post processor software to develop the grinding path, which is then implemented on the ANCA machine. This technique has been successfully applied to production of medical tools such as bone rasps (above) and prosthetic knee joints, turbine blades as well as development of unique cutting tools.

In the bone rasp example above, the TX7+ machine reduced production time of these components from 4 hours to less than 50 minutes.

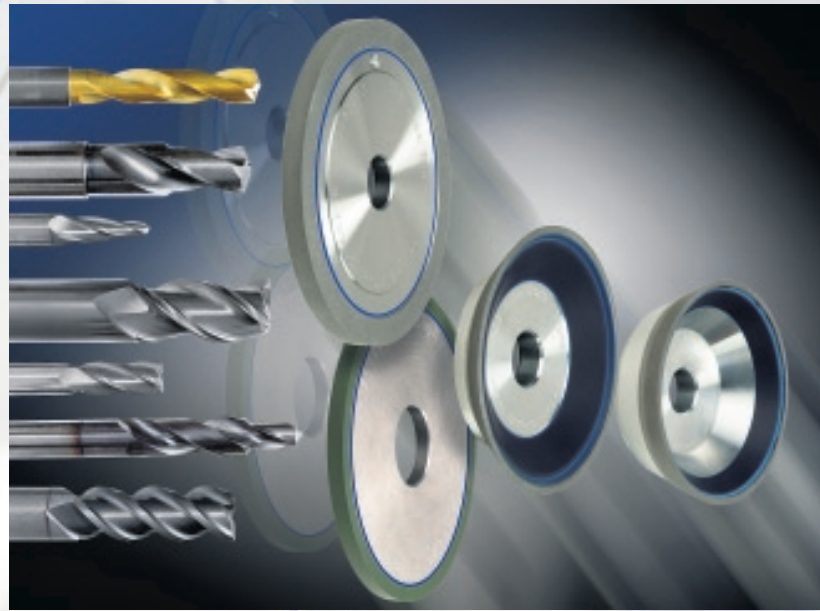


Programming: ANCA software engineers work with customers to develop specialised grinding programs and user interfaces for cutting tools and 3D components.



WINTERTHUR
TECHNOLOGY GROUP

NaxoForce: COST CUTTER



Manufacturers of cutting tools such as end mills and drills are under constant pressure to produce at lower costs, yet at ever higher quality. The users of those same tools are under similar pressures. Hence, we need grinding wheels that grind economically and efficiently.

The NaxoForce grinding wheel range made by the Winterthur Technology Group (WTG) meets these demands: from grinding wheels for high material removal rates combined with excellent form holding, down to polishing wheels that guarantee mirror finishes.

While it is understood that shorter cycle times result in better economy, it is rarely stated what this economy means in numbers. If we shorten the cycle time of a solid carbide end mill by just one minute, from 15 to 14 minutes, for example, into what cost savings would this translate? Using the WTG Total Cost Calculation Program, a program available to calculate costs, shows that this one minute would save € 1.50 per workpiece. Given a large lot size, this would translate into substantial savings, making the tool manufacturer more competitive and profitable.

Savings can also be realised by applying the right parameters to utilise the full potential of the machine tool. WTG engineers have the knowledge, and the software tools, to optimize customer processes on the shop floor. On request, for internal operator training, a DVD showing the optimal preparation and use of NaxoForce diamond and CBN wheels is also available in a variety of languages.

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GX7 helped Southern Saw soar into a new business venture.
Greg Perry reports.

Purchasing your first CNC grinding machine can be a daunting decision as it represents a major turning point in your business. This was particularly true for an Australian company, Southern Saw Service. For them, investing in the ANCA GX7 also meant venturing into a completely new business direction.

Southern Saw Service is located in Hobart, the capital city of Australia's most southern state, Tasmania. Originally called Van Diemen's Land, Tasmania was one of the earliest settlements in Australia. Now it is well known for tourism, gourmet food, wine and breweries, and timber industry.

For two generations, Southern Saw has been servicing saw blades and band saws for the local timber industry in Hobart and the surrounding area. Comfortable in their market sector, proprietors Kevin and Andrew Scott decided to branch out and investigate new business possibilities. After careful consideration, they concluded that cutting tools would be their next venture.

Following several months of research, Southern Saw settled on the ANCA GX7. "We were really impressed with the performance of the machine, the quality of the demonstration by ANCA staff and the facilities at ANCA's headquarters in Melbourne" said Kevin. "This, in the end, made it a pretty easy decision for us to buy the ANCA machine".

Once they had the machine, all they needed was the work. "After we had the machine on order, we started promoting it," said Kevin. "It was amazing really. People started knocking on our door with boxes of tools asking if we can sharpen this or if we can make that. Work was coming to us." By promoting the ANCA machine's capabilities, Southern Saw found that it not only helped generate new business in Tasmania, but also created opportunities to

expand their business to other states of Australia.

Southern Saw's machine is fitted with the compact CLX loader which provides the capability for unattended operation. "We have certain jobs that we run on a weekly basis now. There's nothing better than coming in first thing in the morning and knowing that our machine has been making money while we sleep" said Kevin.

Southern Saw Service now services and manufactures a range of metal cutting tools as well as wood working cutters and profile blades. At the time, it might have seemed like a bold step to invest in the ANCA GX7, Kevin happily testifies that despite a few sleepless nights initially, he now sits back and thinks about his next ANCA machine.

**"There's nothing better than...
 knowing that our machine
 has been making money
 while we sleep."**



punch grinding

ANCA's new software that offers a complete solution for any punch grinding application by **Andrew Ritchie**.

ANCA has recently released a comprehensive punch grinding software package, which is a significant addition to ANCA's existing range of Tool and Cutter Grinder software. The new software aims to expand and enhance punch grinding capabilities for ANCA's customers.

iPunch is designed to be used in conjunction with iGrind, offering cycles for grinding standard (convex) punches. The iPunch software can also be used in combination with ANCA's existing Key Hole Punch software, providing complete flexibility in punch grinding applications.

iPunch

The iPunch software can provide ANCA's customers with new business opportunities in the areas of turret press punch tools as well as periphery grinding of inserts. Punch geometry can be specified using one of the 38 library

templates or imported via a DXF file. Final tool geometry is defined by the number of physical steps on the tool, which may include any of the following:

- Punch form
- Necking section
- Cylindrical section
- Peel grinding profile
- Taper punches

iPunch can precisely handle multiple steps by identifying the material that has already been removed from the previous operation. By spiraling inwards from the initial to the final shape, iPunch ensures the wheel is constantly in contact with the part. The iPunch software allows full control over each operation sequence for:

- Roughing
- Finishing
- Sparkout
- Oscillation

Key Hole Punch

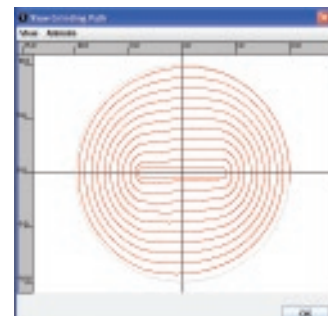
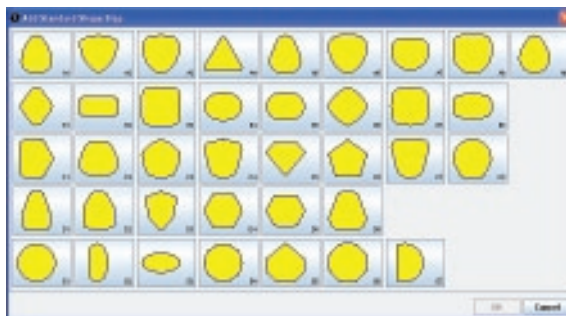
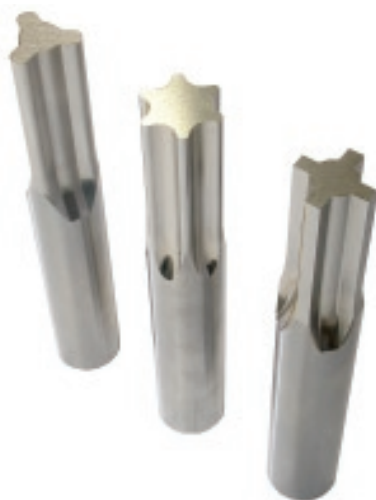
For programming concave punches, ANCA Key Hole Punch (KHP) software has the ability

to grind tools to any customised shapes as required. The tool geometry can be specified by using one of the 24 library templates or can be imported via a DXF file. The KHP software allows full control over each operation sequence for:

- Slice roughing
- Profile finishing
- Formed wheel grind
- Form generation by oscillation

Grinding is performed with either standard (sharp-edge) wheels or formed wheels, using ANCA's Dressing Software to dress custom profiles.

ANCA's new punch grinding suite, the iPunch and KHP software, allows customers total freedom to grind any combination of punch geometry and profile. With a quick and easy set-up through the library templates or via DXF and the capacity to store a multiple selection of wheels, there has never been a faster and more flexible approach to grinding punches.



Far Left: Examples of key hole punches ground on the TX7 **Left:** iPunch library of standard shapes **Right:** Grinding wheel path can be graphically displayed



FastGrind



ANCA's latest FastGrind is an affordable entry-level CNC resharpening machine, reports *Greg Perry*.

Taking the first step into CNC grinding technology can be a major investment, which requires careful consideration. ANCA's newest entry-level CNC grinding machine, the FastGrind, may help make the decision-making process a little bit easier.

What is FastGrind?

Built on the highly successful RX7 platform, the FastGrind delivers proven machine design, quality and precision for which ANCA is renowned.

ANCA's latest entry-level machine uses the same machine elements as the RX7 with the only significant differences being the reduced spindle power and the visual appearance.

The FastGrind includes all ANCA innovations such as direct drive technology, polymer concrete base, MPG feed and Cim3D. Most importantly, ANCA's ToolRoom® suite allows you an unlimited access to the full range of tool and cutter grinding software.

The FastGrind Advantages

The FastGrind is designed to meet the requirements of resharpening or small-batch manufacturing. By removing unnecessary high production orientated options such as auto loading and automated clamping, we have been able to reduce build costs and deliver the most affordable ANCA CNC grinding machine yet.

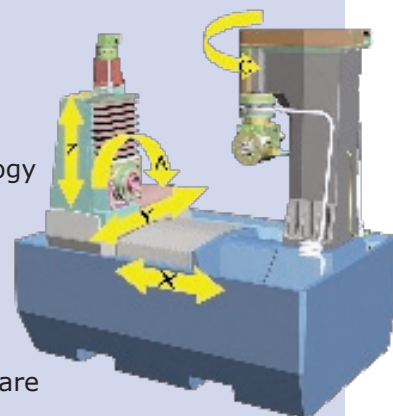
Designed with regrinding capability in mind, the FastGrind's 3.7Kw/5HP (8kW/10HP peak) offers sufficient power for

resharpening tasks as well as some light manufacturing.

The FastGrind is not limited to first time or small-scale CNC users. Large tool producers are investing in the FastGrind as an additional resource for special tooling or small quantity jobs. Since interrupting production machines for a small batch or one-off task can be costly, the FastGrind has proven to be an attractive option for quick turnaround projects. Large machine shops or manufacturing companies with high tool consumption can also realise a significant cost saving by using the FastGrind to provide inhouse resharpening capability.

FastGrind at a glance (See Page 20 for technical specifications)

- Resharpening machine with some manufacturing capabilities
- Unbeatable price/performance ratio
- ANCA's proven accuracy and reliability
- The very latest in CNC grinding technology
- Double ended HSK wheel spindle
- Polymer ANCAcrete base
- MPG feed
- Direct-drive technology
- User friendly and industry leading software





MX7

The ANCA MX7 machine is the "next generation" in precision CNC grinding. With innovative features built in as standard, this machine has the speed, flexibility and performance for any high-production environment.

MX7 technical specifications

CNC-Data						
ANCA 5DX, Intel Core 2 Duo, min. 1GB RAM, 15" Touch Screen, Ethernet port, 56kbps modem, Two USB ports, UPS						
Mechanical axes						
	X-axis	Y-axis	Z-axis	C-axis	A-axis	Q-axis
Position feedback resolution	0.0001 mm	0.0001 mm	0.0001 mm	0.0001 deg	0.0001 deg	0.03 deg
	0.000039"	0.000039"	0.000039"			
Programming resolution	0.001 mm	0.001 mm	0.001 mm	0.001 deg	0.001 deg	0.3 deg
	0.000039"	0.000039"	0.000039"			
Software axes (patented): B, V, U, W						
Work piece						
Maximum tool diameter / Maximum tool grind length / Maximum weight: 100 mm (4") / 250 mm (9 3/4") / 20 kg (44 lbs)						
Drive system						
ANCA Digital (SERCOS) / Linear axes direct drive ballscrew / Rotary axes direct drive						
Machine data						
Grinding spindle: ANCA Bi-directional 20 kW (S1) 29Nm / 10,000 RPM / Permanent magnet / Position controlled axis (Q-axis) / Integral direct drive / HSK 50F Taper						
Grinding wheels: Max. diameter 150mm (6") / Wheel bore: Ø31.75mm (1.250"), 32mm, 20mm / Six wheel packs with max. four wheels each.						
Other data						
Electrical power	25 KVA					
Probe system	Renishaw					
Coolant system	External					
Machine base	ANCAcrete (polymer concrete)					
Colour	RAL 7035 / RAL 5014					
Weight	Approximately 5,500 kg (12,125 lbs)					
Floor plan (including loader)	Width		Depth		Height	
	2320 mm		2240 mm		2130 mm	
	92"		88"		80"	
ANCA reserves the right to alter or amend specifications without prior notice						



FastGrind

The ANCA FastGrind is an affordable entry-level CNC resharpener machine with some manufacturing capacity.

FastGrind technical specifications

CNC-Data					
ANCA 5DX, Intel Core 2 Duo, min. 1GB RAM, 15" Screen, One USB port, Network port					
Mechanical axes					
	X-axis	Y-axis	Z-axis	C-axis	A-axis
Position feedback resolution	0.0001 mm	0.0001 mm	0.0001 mm	0.0001 deg	0.0001 deg
	0.000039"	0.000039"	0.000039"		
Programming resolution	0.001 mm	0.001 mm	0.001 mm	0.001 deg	0.001 deg
	0.000039"	0.000039"	0.000039"		
Software axes (patented): B, V, U, W					
Work piece					
Maximum tool diameter / Maximum weight: 220 mm (8.6") / 20 kg (44 lbs)					
Drive system					
ANCA Digital (SERCOS) / Linear axes direct drive ballscrew / Rotary axes direct drive					
Machine data					
Grinding spindle: ANCA Bi-directional 3.7 kW (S1) / 10,000 RPM / Integral direct drive / HSK40F taper					
Grinding wheels: Max. diameter 202mm (8") / Wheel bore: Ø31.75 mm (1.250"), 32 mm, 20 mm / Two wheel packs with max. four wheels each.					
Other data					
Electrical power	15 KVA (including coolant system)				
Probe system	Renishaw				
Coolant system	External				
Machine base	ANCAcrete (polymer concrete)				
Colour	RAL 7035 / RAL 5014				
Weight	Approximately 4,500 kg (9,920 lbs)				
Floor plan (including coolant system)	Width	Depth		Height	
	2075 mm	1450 mm		1990 mm	
	82"	55"		78"	
ANCA reserves the right to alter or amend specifications without prior notice					

ANCA worldwide

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ANCA Japan
ANCA India
ANCA Thailand Ltd
ANCA Motion
Sahamit Machinery
CKB

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Earth Falcon
Innovative Machine Solutions Inc.
Machine Tool Marketing Inc.
Machines & Methods Inc.

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Metalworking Technologies Limited
Modern Tools Inc.
Productivity Inc.

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MX7

The Next Generation

The next generation in precision grinding has now arrived with ANCA's new **MX7**. With a list of innovative features that are built in standard for improved performance and production; this is the one grinding machine that the industry has long been waiting for.

- High torque spindle with HSK taper.
- 6 pack wheel-changer standard.
- Integrated loader.
- Intelligent design and engineering.
- Industry renowned software.

Speed, flexibility, ANCA reliability and optimum precision – are just some of the benefits with the machine that has it all.

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TOTAL PRECISION

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**Precision
Versatility
Productivity
Confidence**