ANCA’s ToolRoom 2012 tool grinding software is packed with new features to enhance and simplify the tool design and production process. ANCA’s renowned application diversity and flexibility is further enhanced in this highly anticipated release.

**Integrated 3D Graphics – iGrind**

- 3D model of tool now displayed within iGrind with colour coded operations.
- Model updates within seconds of changing a design parameter.
- Program the tool and verify the geometry directly on the machine.
- Touch-screen friendly controls allow full manipulation of the model on the machine.
- Interface does not wait for the model to update.

**2D Cross Section Graphics – iGrind**

- 2D Cross Section graphics available within iGrind.
- Obtain a cross-sectional view of the tool at any position using a slider bar or specified position.
- Perform length and angle measurements.
- Model updates as parameters are changed.

**New Endmill Wizard**

- Completely new and comprehensive Endmill Wizard within iGrind for ballnose, corner radius, square, and chamfered end mills.
- Automatically and easily generate production ready tools directly on the machine.
- Many options to customise the tool geometry.
- Automatic wheel selection and recommendation.
- Simplifies endmill programming and reduces operator training time.
- Completely customisable. Define your own wizard behaviour to cater for your tools and production methods.
- Create multiple customisation sets to suit different product ranges.
DXF Overlay in CIMulator3D

• The OD and cross sectional profile is automatically sent to CIM3D (in DXF format) from iGrind when using CIM3D Version 7.
• Allows geometry to be verified against simulated result.

Automatic Flute Hook Compensation

• Automatically calculate the compensation required to grind accurate cutting edges on complex profile tools.
• Eliminates the need to perform lengthy digitising operations.
• Works for all flute geometries regardless of complexity.
• Ability to select any operation for the edge detection calculation allows complete flexibility to grind complex tool geometries.
• Simulate and verify geometry and grinding moves offline.
• Simplifies programming of profile tools and reduces setup times on the machine.

Automatic K-Land Calculation

• Automatic and accurate K-Land calculation.
• Eliminates the need to digitise when manufacturing.
• Optionally select the operations to consider in the edge calculation for full flexibility.
• Simulate and verify geometry and grinding moves offline in CIM3D.
• Drill Wizard produces tool with calculated K-Land when operation is selected.
• Option to auto-split the edge geometry from the EDGE menu.
• Significantly reduces setup times.

Helix Correction for Step Tools

• Helix Correction to produce a shear edge on the step.
• Strengthens the edge on step tools.
• Automatically calculated by the software.
• Can be applied via the Drill Wizard automatically.

Windows 7 Compatible

• Compatible with Windows 7 Professional 32 and 64 bit versions.

Improved Simulation Times

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• Significant improvements in simulation times when using CIMulator3D using the new Direct Mode simulation.
• Indicative simulation times shown above. (Time between pressing GRIND and obtaining 3D model.)
• Up to 10 times speed improvement for some tool types such as Taps, Punch Tools, and other tools with complex moves.

Digitise Step for K-Land Grinding

• A new Lip Digitising operation has been added to enable digitising of the Rolled EOT step in order to grind or regrind the K-Land on the step.

Laser Probing

• Support for optional in-machine, permanently mounted, laser probing unit.
• Automatically measure and compensate ballnose, corner radius, & profile tools in process.
• Laser OD SPC cycle also available.
• Eliminates the need to remove the tool from the machine, open the door, or pause the grinding cycle.
• Typically achieves +/- 3 microns accuracy or better.
• Reduces set-up time and scrap tools.
• Improves repeatability with larger batch sizes by compensating for thermal effects and wheel wear.
• Performs the same task as expensive dedicated measurement machines.
• Along with the new ToolRoom 2012 Automatic Flute Hook Compensation feature, greatly simplifies the programming and manufacturing of profile tools.

Wheel Probe Qualification

• Support for optional headstock mounted wheel probe.
• Quickly and accurately qualifies wheel packs automatically with superior repeatability compared to manual methods.
• iGrind support for automatic in-process wheel qualification when batch grinding to compensate for wheel wear.
• Multi-probing around the wheel to intelligently find the high spot. (Automatic for machines with indexable spindles.)
• Reports wheel run-out values.
• Support to measure toroid radii on wheels.
• In-Process spindle growth measurement & compensation.

iGrind – Cycle Time Estimation

• Cycle time estimations are shown automatically within iGrind.
• Total and per operation times are displayed and updated automatically as parameters change.

Auto Wheel Orientation – End Face
• Wheel orientation and clearance automatically calculated for End Face Finishing and Tertiary operations.
• Calculates required values per flute to avoid interference.
• Ability added to manually specify values for each flute.
• Simplifies programming of end mills with many flutes.

Wheel Selection Table

• Wheel selection table accessible from iGrind main toolbar.
• Displays all operations and selected wheels.
• Displays all mounted wheel packs for easy one-click selection.
• Simplifies selecting and viewing of wheels in one easy view.

EOT Protrude Length Specification

• Tool protrude length specification from iGrind Digitise EOT operation.
• Ability added to digitise the collet face from digitising operation.
• CIMulator3D automatically uses specified value.

Ball Gash Undercutting Detection

• Automatic detection of potential undercutting when grinding the ball gash which may result in a visible grind mark.
• iGrind will warn and recommend values to rectify the issue.

Core Profile Probing & Compensation

• Support for optional Ruby Probe to digitise and compensate the core profile for Formed Flute from Solid.
• Graphical display of all digitising results.
• Ability to specify tolerance and compensation limits.
• Perfect for maintaining the core profile on long drills.

Ball Gash Extensions

• 5-axis grind path extensions for the Ball Gash operation.
• Extensions can be automatically or manually specified.
• Improves surface finish by eliminating potential approach or retract grind marks.

Ballnose – Angular Path Extension

• Option added to the OD and Ball Finish cycle to allow an angular 5-axis approach move into the ball.
• Can improve surface finish by approaching the ball at a small angle.
Multi Drill Gash – Stop Angle

- Option added to Multi Drill Gash to specify the tangent angle between the S-Gash and the drill lip.

Spindle Load Logging

- Option to log the spindle load during flute grinding.
- Detailed logs are produced showing spindle load per pass, over time, maximum achieved, etc.
- Graphical display allows analysis and optimisation of the fluting process.

P-Axis Qualification

- New P-axis qualification interface.
- Simplifies the qualification process and allows saving and loading of configurations.
- Ability to qualify “Park” position for use in iGrind

Tool Preview Browser

- A 3D image of the tool is now automatically saved with the TOM file in iGrind.
- The Tool Preview Browser will automatically display images of the tools when saved in ToolRoom 2012 or later.

Thread Relief Measurement – iProbe

- Ability to accurately check the thread relief on taps.
- Optional machine mounted probe unit for continuous measurement with 0.1 micron resolution.
- Generates a report graphing the thread relief on the front, back, and crest of the tap as well as thread relief values.
- iProbe interface allows general continuous measurements to be made on the machine.
- Performs the task of an expensive measurement machine for a fraction of the price.

Complex Variables for Corner Radius

- Complex variables available for Corner Radius Primary and Secondary relief as well as land width.
- Ability to vary geometry along these features.
**Index X Position Reference**

- The X position at which the A-index specification applies can now be specified from the Common Parameters page.
- Particularly useful for variable helix tools.

**Corner Radius Gashing**

- Option added to Corner Radius Gashing operation to control the depth with respect to either the wheel periphery or toroid center.

**Rolled EOT on Shear Tools**

- The Cutting Edge Angle option is now available to use on shear tools for the Rolled EOT operation.
- Grinds an accurate cutting profile angle on the step.

**OD Backoff Enhancements**

- Radial Land made into a Complex Parameter and ability added to add taper correction in OD Backoff operation.

**Endface and Point Gashing Clearance**

- Ability to specify a wheel clearance angle in Endface and Point Gashing in order to improve surface finish.

**Fluting – Core Diameter**

- Option added to Flute from Solid operation to specify core diameter instead of fluting depth.

**K-Land on Step in Drill Wizard**

- Option to add K-Land on the step from the Drill Wizard.

**TGP – Grinding Progress Bar**

- Tool Grind Page (TGP) progress bar added for OD Backoff, Raised Land, and Tool End/Shank Cut-Off operations.
Conical and Seco Drill Points

- Ability to specify oscillation on finishing or sparkout moves.
- Automatic calculation of Edge Start to Vertex distance in Conical Drill Point.

iPunch Enhancements

- Various iPunch enhancements including ability to grind concave punches, concentricity probing, improved path generation algorithm produces smoother axis moves, last pass simulation option, greatly improved simulation times, and more.

Eccentric Cup Wheel Qualification

- A new method has been added to the Wheel Editor to easily and accurately qualify an eccentric cup wheel (11M2) using a qualification bar.

RoboMate Enhancements

- Several RoboMate enhancements including an Auto Regenerate option | changes to TOM files are applied on the next tool, variable pocket depth and support for Bundle files.

iView Enhancements

- Supports optional horizontal iView mount for simple end-face measurements.
- iView report now optionally shows the nominal as well as measured points.

Release Manager

- ToolRoom 2012 includes a Release Manager for simulators which simplifies swapping between different ToolRoom Releases.
- Machines configurations can be set-up and easily selected to ensure appropriate tooling options are activated within the software.

Shear Hook Converter and Numpad

- Converter added to Insert Width parameter to convert between hook angle and insert width for zero shear tools.
- Numpad icon added to iGrind toolbar to allow touch screen friendly data input.
Pilot Tool Segments

- A new Pilot Tool Segment is available to simplify creating step drills.
- The Drill Wizard will now automatically create a Pilot Tool Segment on step tools to avoid breaking parameter links.

Other New Features in ToolRoom 2012

ToolRoom 2012 includes many other new features and enhancements. Some of these include:

- Wheel side selection (front or back) is now available for the Endface and Point Gash operations.
- Ability to divide one physical white-stick into multiple virtual sticks when using the Dressing software.
- Delta-C R840 Gash wheel surface selection option.
- Delta-C R860 Point end-face land width compensation.
- Profile Editor enhancements including ability to split elements into evenly divided sub-elements, zoom and pan on touch screens, snap to grid, and automatic gap closure.
- It is now possible to perform Profile Compensation when using the Grind Sharp Corners option.
- A new Simulate Probing feature allows the digitising operations to be considered and behaviour customised when simulating.
- Support for NC Popup Steady which allows automatic height adjustment.
- Grind-Digitise-Grind compensation for Laser OD SPC.
- The ANCam iGrind post processor operation is now standard in iGrind.
- Roll Chamfer grinding can now be performed at wheel 9 O’clock position.
- The CIMulator3D blank diameter can be specified independently from the Common OD.
- Compensation percentage as well as X-Position Distance options added to the OD SPC operation.
- SPC Tolerance and Limit Validation added.
- Cycle Time Estimation for Tap Threading and Cresting operations.
- Restriction relaxed for “Jerk Limit Exceeded” warning for Forming Taps to allow faster grinding RPM.
- Large touch-friendly pop-up spinner controls for integer parameters on the machine.
- Option to view qualification values in the Wheel Editor as well as run-out values where a Wheel Probe is mounted.
- Drag-and-drop support and a Wheel Pack Browser for the Wheel Exchanger software.
- Arc blanks automatically used in CIM3D for Ballnose tools.
- Milling arbours added to the Wheel Editor.
- Compensation for shear Ballnose tools.
- New toolbar in Wheel Exchanger software as well as being able to edit a wheel pack by double-clicking on it.
- Reopen menu in the Wheel Editor shows icons for all previously opened wheel packs.
- Dresser software can now support any number of dresser rolls mounted to the machine.
- Various enhancements in the Script and Part Program Editor as well as the scripting language.
- Warning configuration dialog now show complete warning messages.
- Ability in iGrind to navigate to either the previous or next operation from within the worksheet.
- The iGrind Tool Wizard screen (initial screen) has been modified to support loading of Bundle files and allow tool searches.
- Special Operations for iPunch.
- Tool Search now supports searching inside of bundle files.
- A Clear Compensation button has been added to the K-Land display worksheet.
- Ability to run an ANCA script on a set of search results.
- Ability to associate an NC GUI button with a script
- Please note that old software versions of Side and Face, TGD, and old Wheel Editor software are no longer available in ToolRoom 2012.