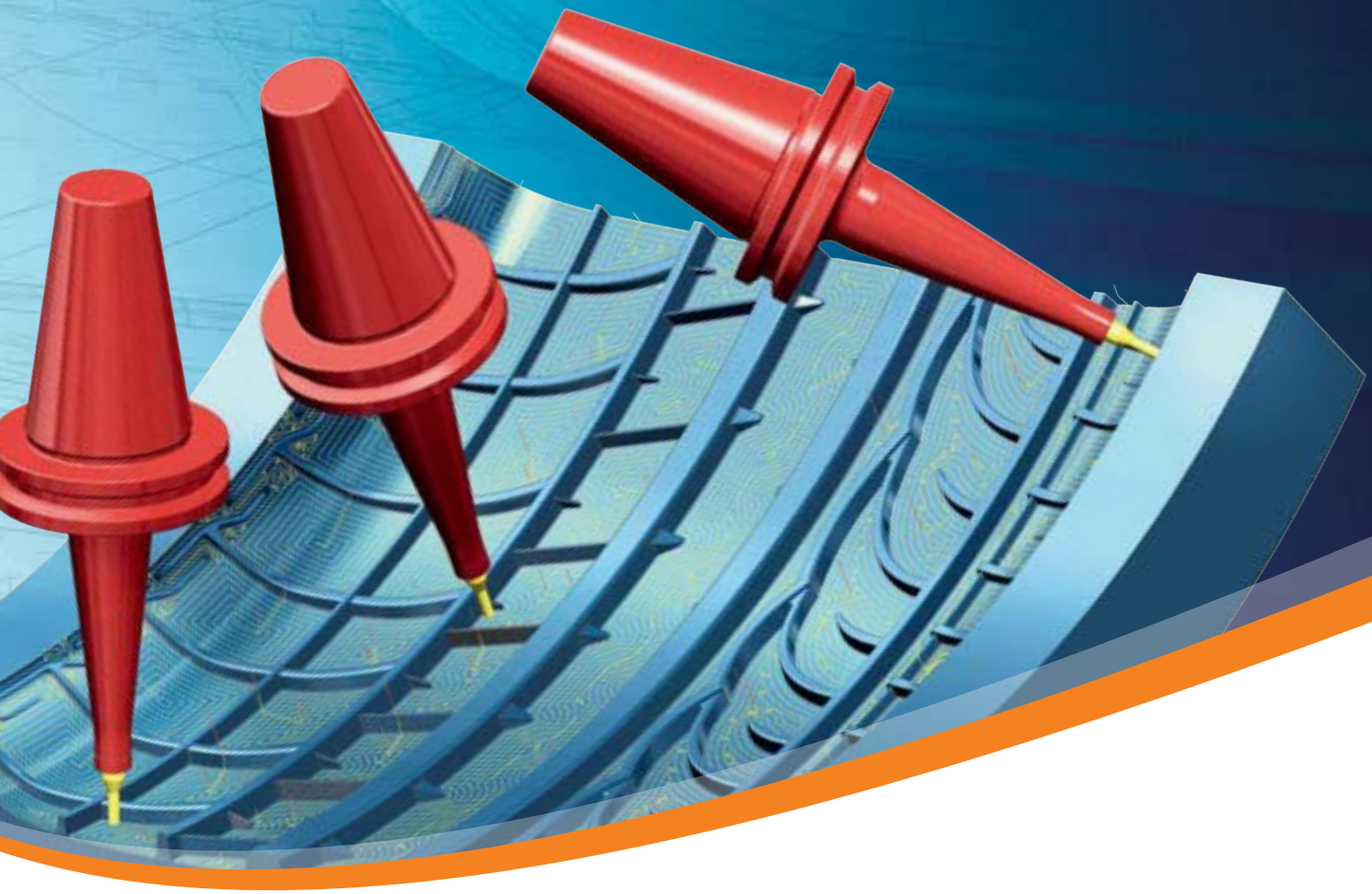
hyperMILL®



Taking tire machining
to the next level

TIRE MODULE

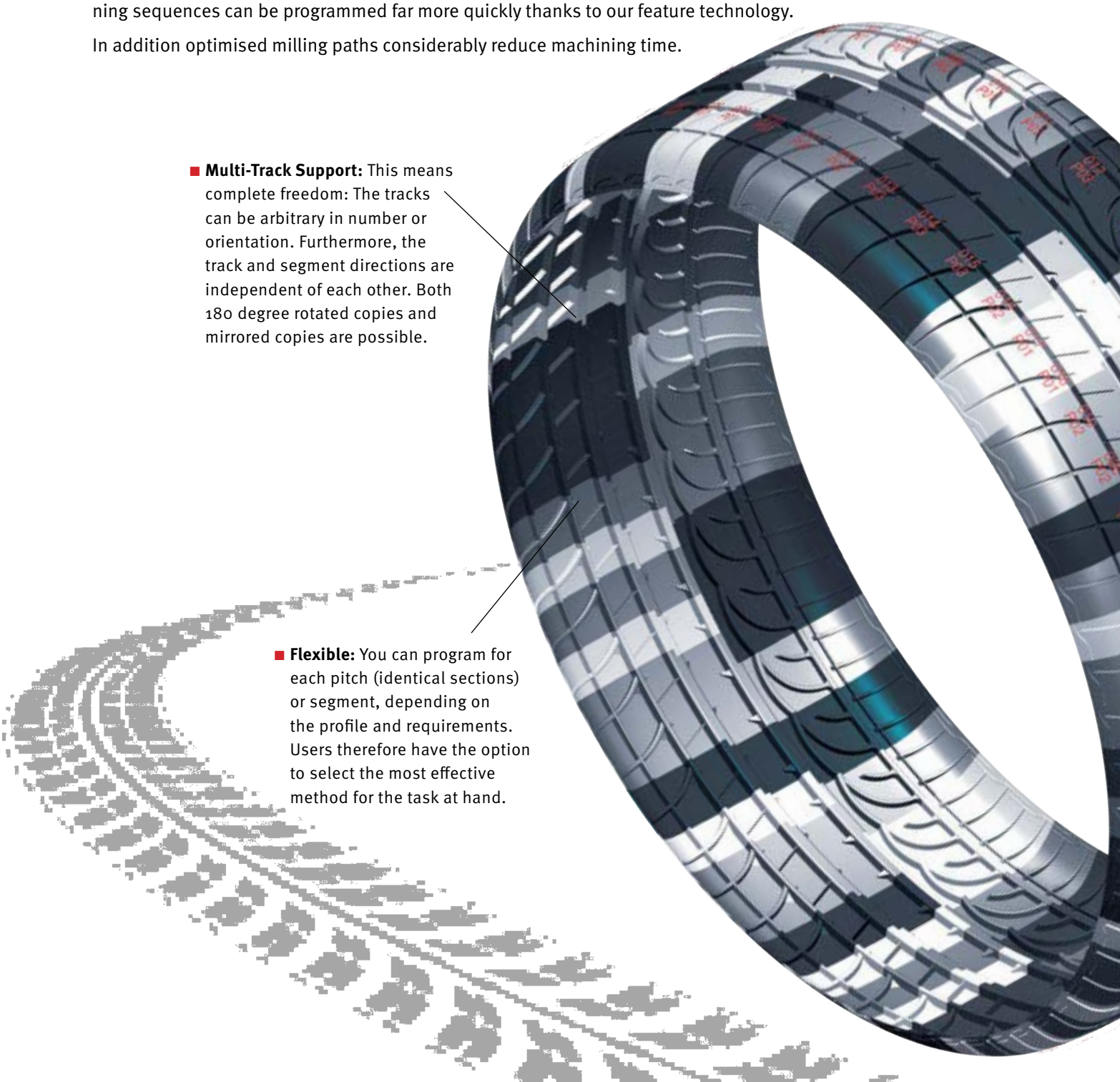
OPEN MIND
THE CAM FORCE

The Advanced Solution for Tire Machining

Whether using direct engraved moulds or model patterns – the *hyper*MILL® tire module mills tire moulds more economically than ever before. Automation, milling strategies and special functions guarantee a simplified and efficient programming process, including details such as sipe grooves and stone ejectors. Recurring machining sequences can be programmed far more quickly thanks to our feature technology. In addition optimised milling paths considerably reduce machining time.

- **Multi-Track Support:** This means complete freedom: The tracks can be arbitrary in number or orientation. Furthermore, the track and segment directions are independent of each other. Both 180 degree rotated copies and mirrored copies are possible.

- **Flexible:** You can program for each pitch (identical sections) or segment, depending on the profile and requirements. Users therefore have the option to select the most effective method for the task at hand.



„With *hyper*MILL®, we have a tool that can optimally machine tire molds. In addition, we were able to reduce programming and machining time while improving quality.“

Mike Christie,
VP Northeast Tire Mold Inc. Akron/Ohio

- **Automated:** Combined usage of the tire clock and browser supports CAD preparation and programming almost automatically. Furthermore, *hyper*MILL® automatically calculates collision-free tool positions and orientations. Feature technology and macro database accelerate programming.

- **CAD Preparation:** The tire module takes care of the entire assembly process based on pitch geometry. This includes labeling all entities and trimming all surfaces at the segment border. In addition, all entities are sorted into a layer structure, which is automatically saved to project folders.

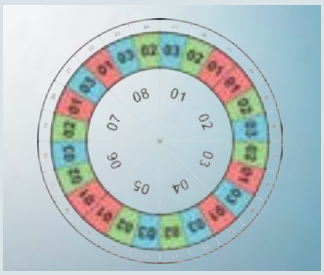
The Tire Clock

The recurring pattern of identical tire pitches is defined within the tire clock. The CAM system uses this information to ensure efficient programming.

The user assigns the numbers of individual pitches to the machining programs for this purpose. Each pitch is programmed only once. The tool path is transformed to the corresponding position in the pitch sequence based on the pitch number.

Trimming to segment borders, sorting and linking with collision check, guarantee a safe and opimised result.

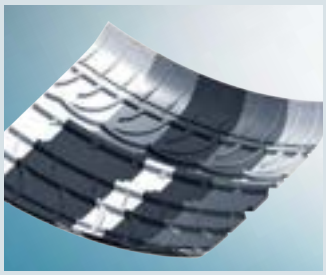
User interface for tire clock definition: Essential basis for all tire projects.



Tire clock: This clock uses the same notation as the tire industry to assign pitches and segments.

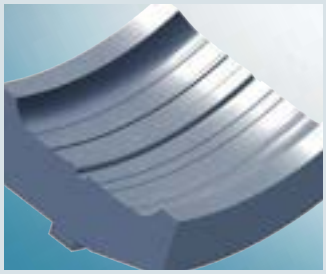
The Tire Browser simplifies the administration of all required geometries.

Creating a tire clock model includes adding a label with a pitch and sequence number.

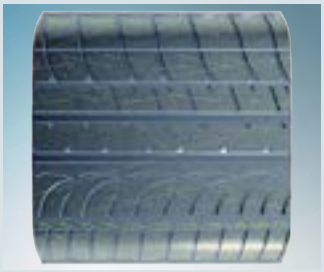


The CAD model for each segment is automatically generated.

The tire module creates the required geometries for pitch and pitch-combination programming.



Each segment has its own stock geometry generation. The stock models are always stored in the correct project folders.



Segment toolpaths are generated using the tire clock.

Right CAM Strategies result in perfect Tire Molds

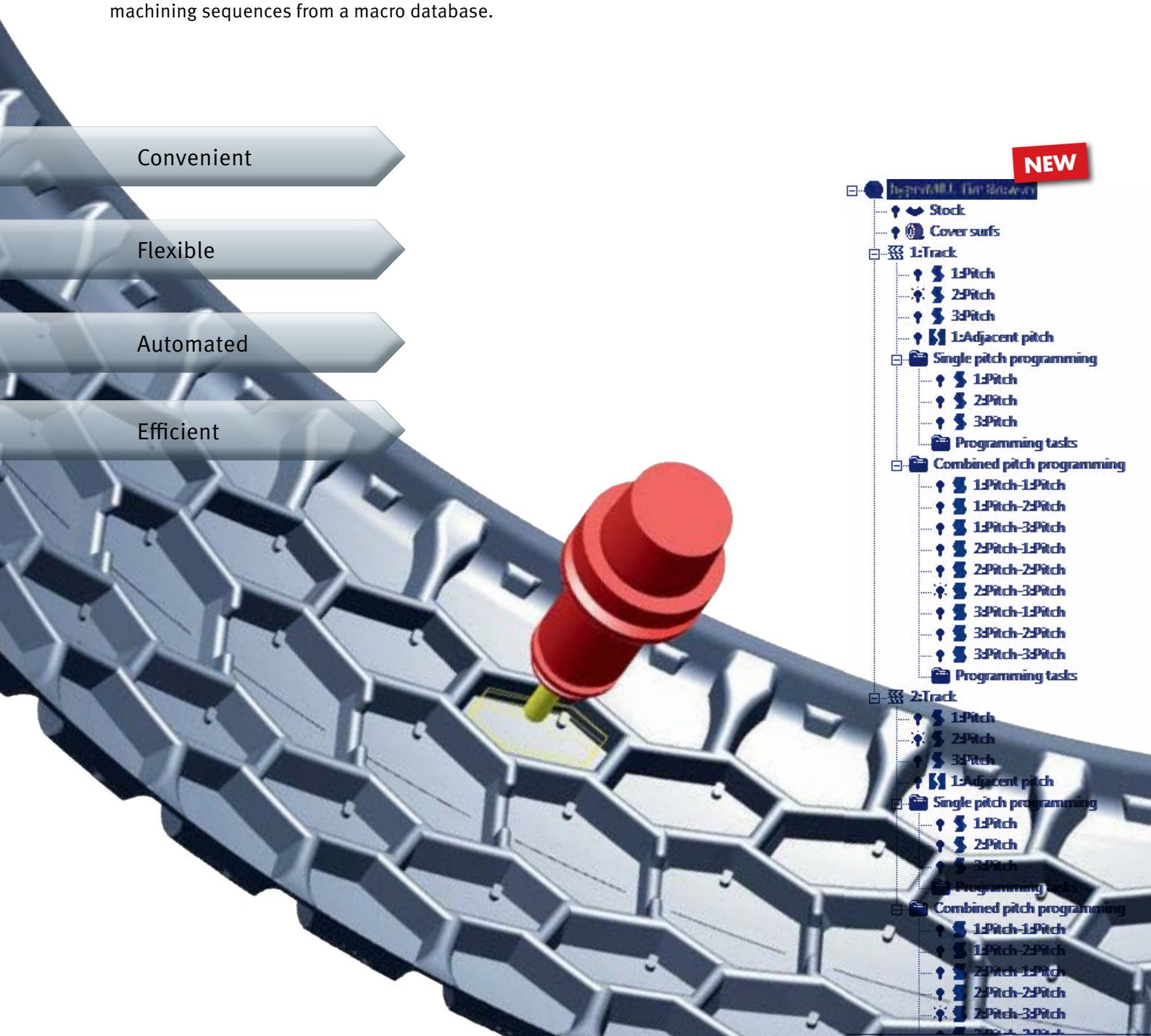
The possibilities for associative segment programming enable a quick change from one segment to another. Our users appreciate our pitch programming as it allows them to focus on programming each pitch type once. The unique combination of segment programming and pitch programming considerably reduces programming and machining time.
Intelligent feature technology now makes programming unbelievably convenient. *hyper*MILL® offers fully developed feature technology for machining work ranging from 2D up to 5-axis. Characteristic geometries can be defined as special features and it is possible to access standard machining sequences from a macro database.

Convenient

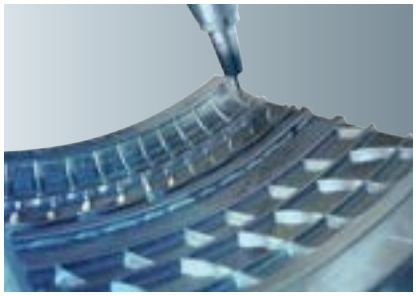
Flexible

Automated

Efficient



Truck steel mold



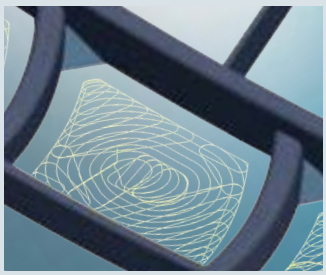
Passenger aluminum mold

Passenger model pattern

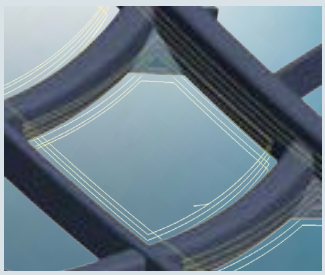
■ **Tire Browser:** The *hyper*MILL® integrated browser delivers an overview and is an important tool for managing the preparation and programming of tire elements, such as pitch geometry or global geometry. The browser is very convenient for automatically showing associated geometry or quickly creating and managing programming tasks.

5axis Shape Offset Cycles:

The adaptive strategy for tire mold machining. Use this function to machine curved surfaces with a consistent offset in a quick and simple manner.

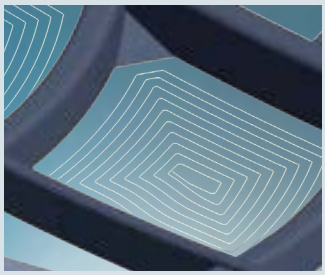


5axis Shape Roughing with *hyper*MAXX®: 5axis trochoidal-style machining



5axis Shape Finishing in side wall mode

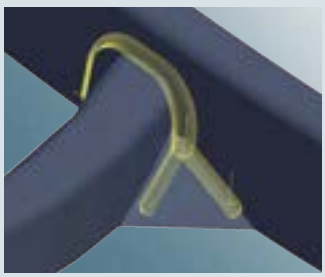
5axis Shape Finishing in rest machining mode



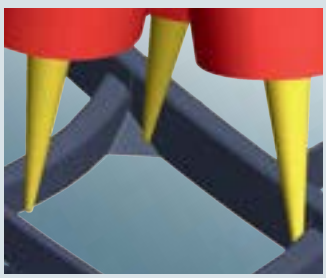
5axis Shape Finishing in bottom mode

General *hyper*MILL® strategies

3D ISO Finishing of fillets



5axis Rest machining with auto index

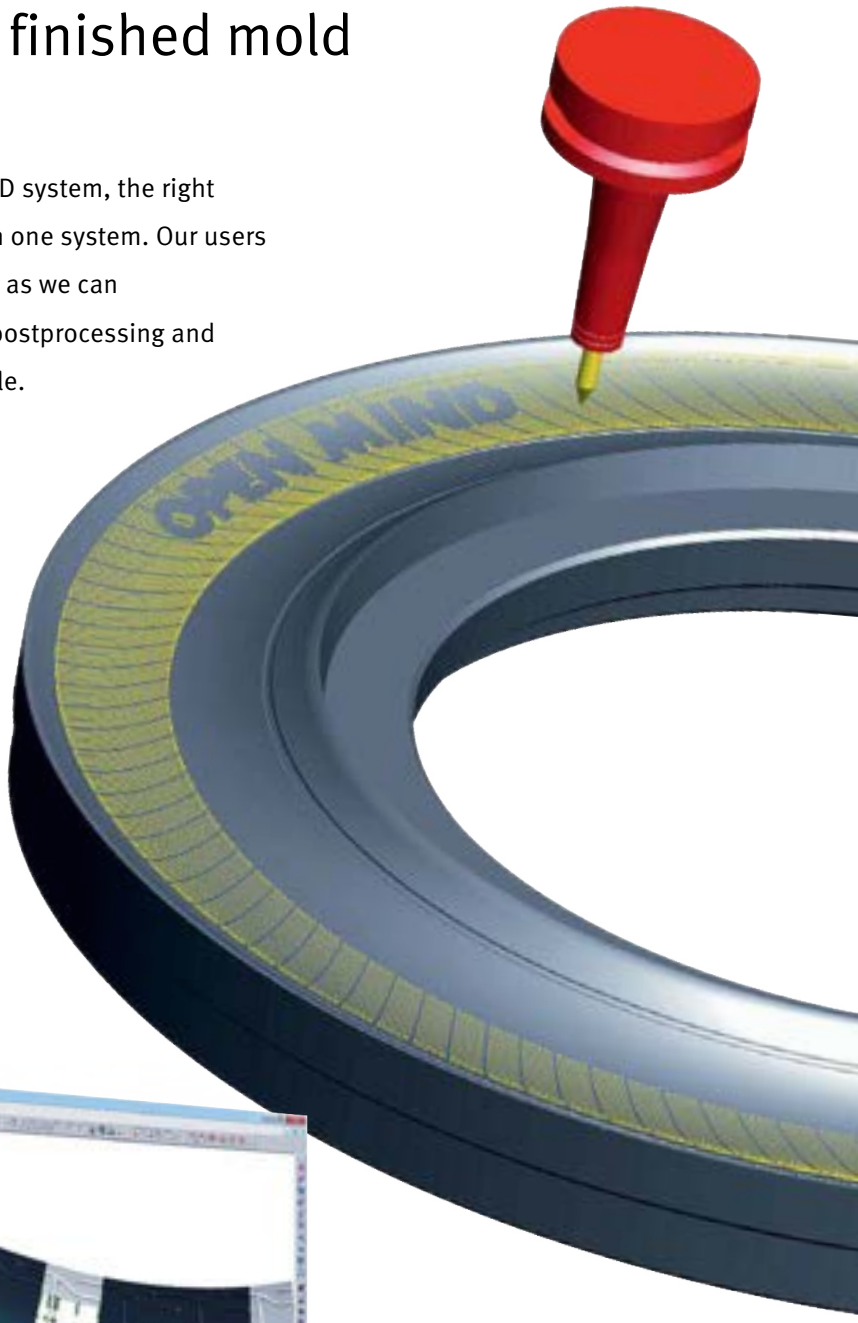


5axis Swarf machining with conical ball mill

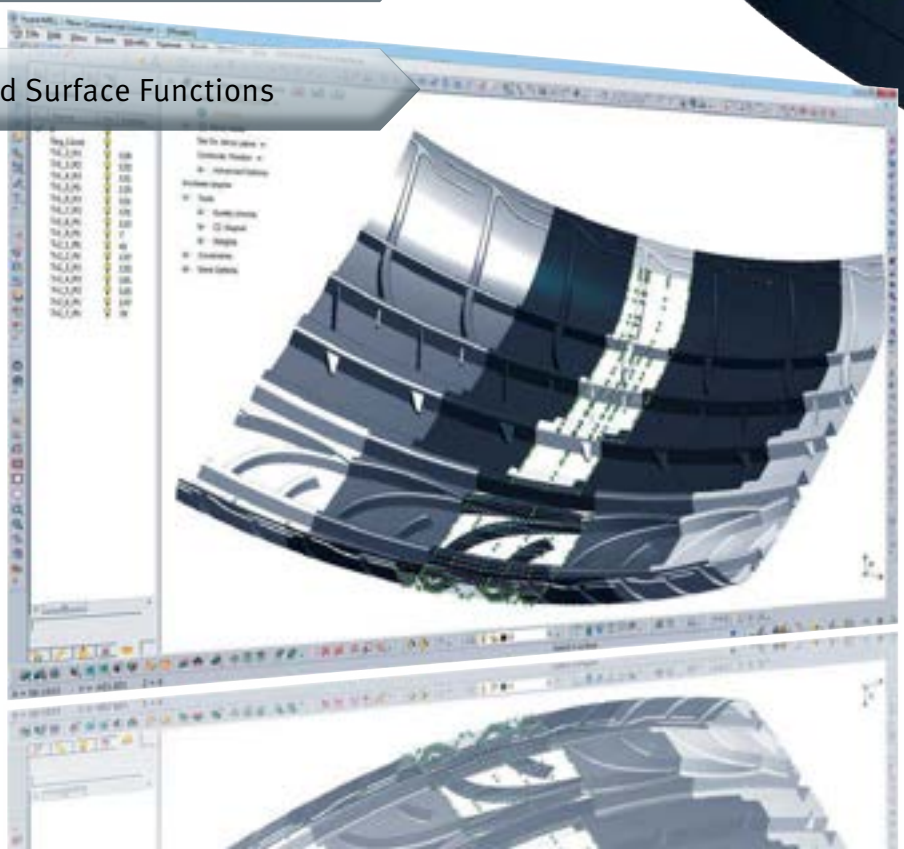
Sipe slot machining

We consider all aspects, from the CAD file right through to the finished mold

Efficient tire manufacturing requires a powerful CAD system, the right CAM strategies and a high degree of automation in one system. Our users never have to leave the programming environment as we can offer CAD preparation, programming, simulation, postprocessing and tool management within the *hyper*MILL® tire module.



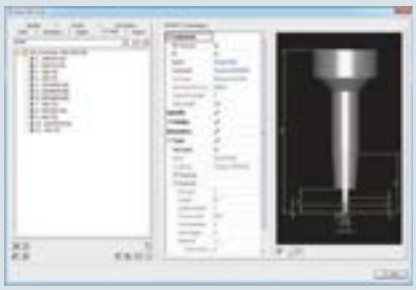
- Hybrid modeler/Solid Surfaces
- Modern and intuitive User Interface
- Parametric and associative
- High End Surface Functions



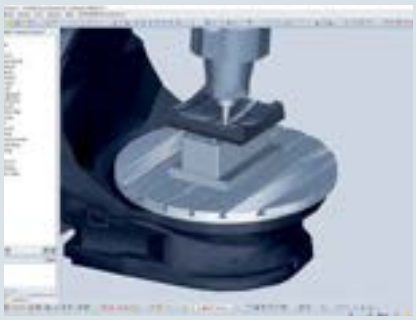
Side Shell Machining:
- Engraving of hatches and letters
- Programming based on 2D or 3D geometry
- Wrap contours and tool path
- Complete machining: milling and turning

***hyper*MILL® tool data base ■ NC tool, tool, holder, extension ■ Cutting data for material usage**

***hyper*MILL® is equipped with a tool database. We custom assemble tools including holders and technology data.**

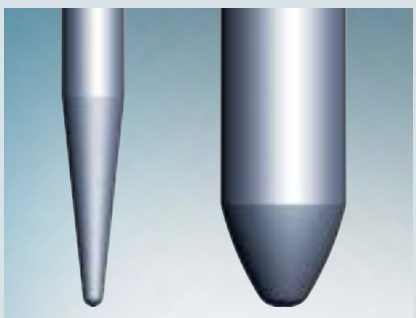


A comprehensive machine and material removal simulation enables reliable workspace monitoring and an advanced collision check.



***hyper*MILL® post-processors create NC programs that are always optimally adapted to the machine, controller and components.**

***hyper*MILL® supports many tool styles including conical tools and barrel cutters, for more efficient machining. The entire tool is checked for collisions against the model, ensuring high process reliability.**



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