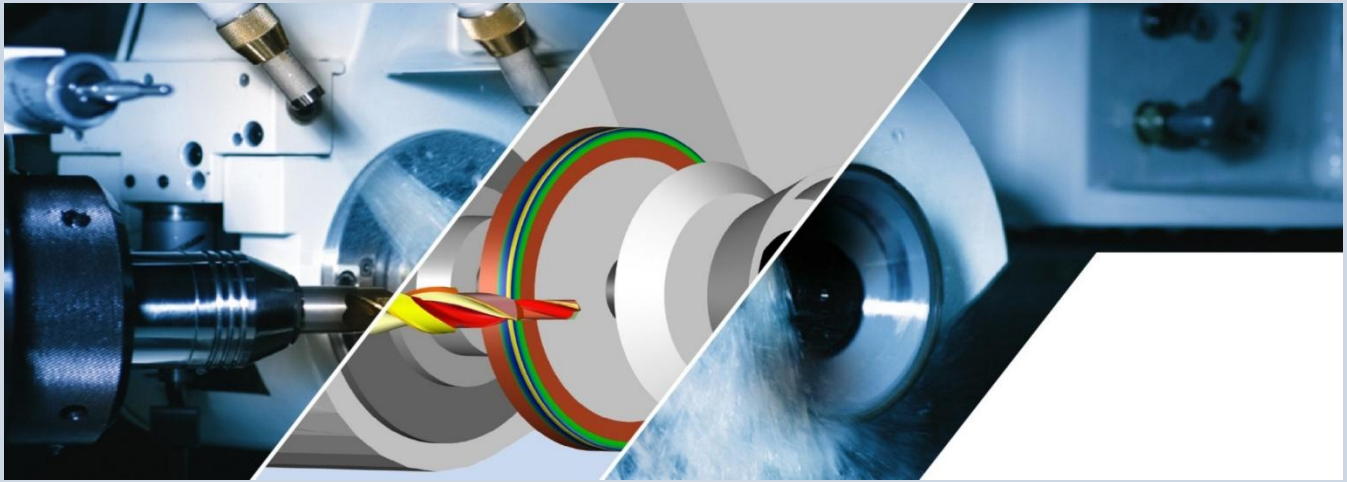


numroto®
Total solution for tool grinding

News - Presentation

GrindingHub in Stuttgart 05. - 08.05.2026

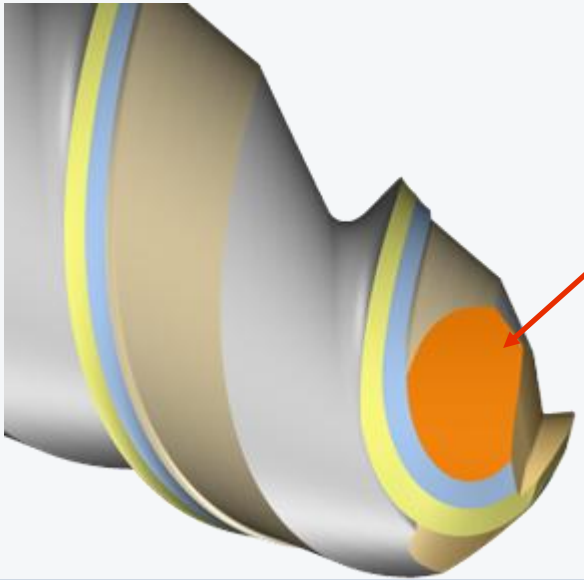
New features in NUMROTO 5.1.0 – 5.2.2

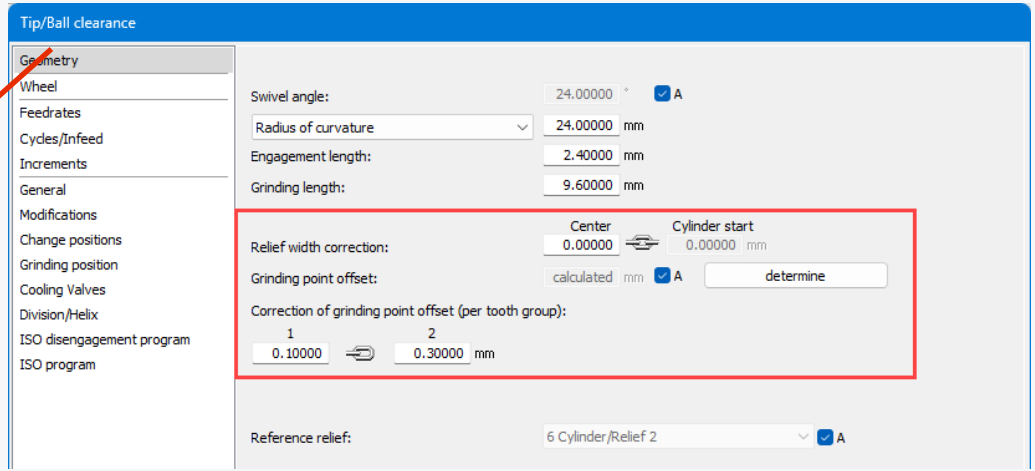
numroto

- End mills
- Drills / Step drills
- Form cutter
- 3D-Simulation
- NR-Draw
- Other topics
- Planned innovations 5.2.2
- Planned innovations > 5.2.2

Ball clearance 5.1.0

- New operation ‘Ball clearance‘.
- Optimally adapted to the chamfer of the reference relief.
- Straight clearance (surface) or clearance with radius of curvature selectable.
- Swivel angle selectable or automatically according to number of teeth and helix angle.



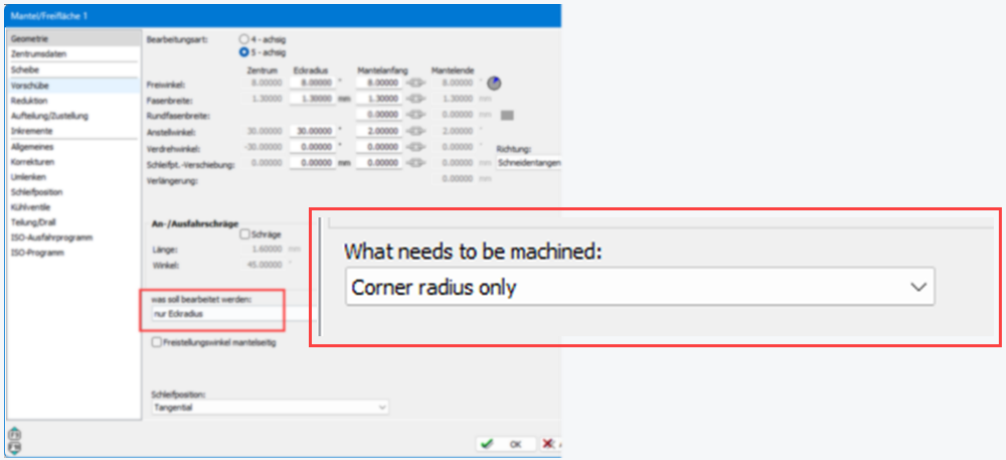


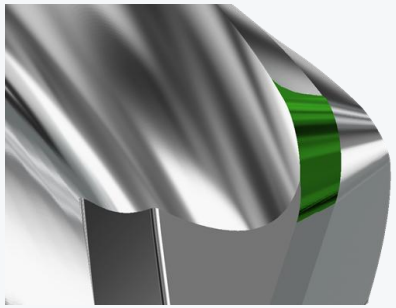
Ball clearance News 5.1.1 – 5.2.1

- A custom increment for the ball clearance operation. (5.1.1)
- The calculation of the grinding point offset has been optimized. (5.1.1)
- You can now manually adjust the grinding point offset relative to the default value. (5.1.1)
- You can program a correction for grinding point offset (per tooth group). (5.2.0)
- The default values for the engagement and disengagement distance are calculated more accurately. (5.2.1)
- For ball clearance, you can now program a relief width correction at the center and the cylinder start. (5.2.1)

Corner radius relief: grind ‚corner radius only‘

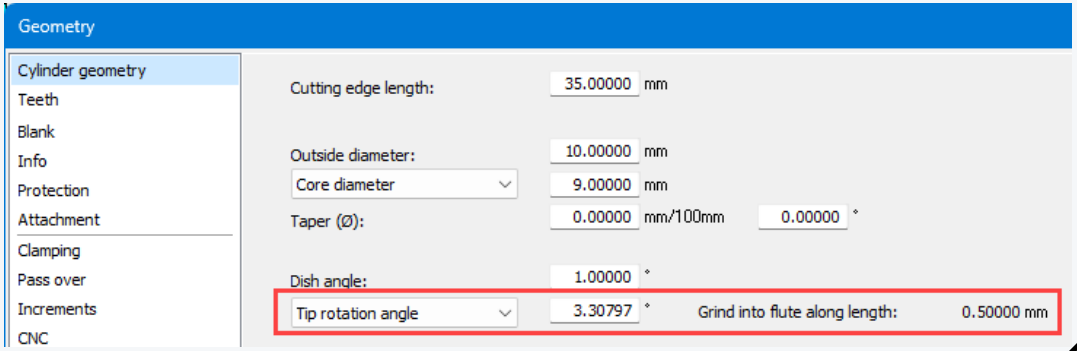
- As an alternative to grinding the relief of a corner radius cutter in one go (from the center to the shank), the following cutting division is now possible:
  - Relief ‘Cylinder only‘
  - Manual tip relief (Machining direction ‘from outside’)
  - Relief ‘Corner radius only’
- Can be an advantage for tools with a tightly toothed tip geometries.

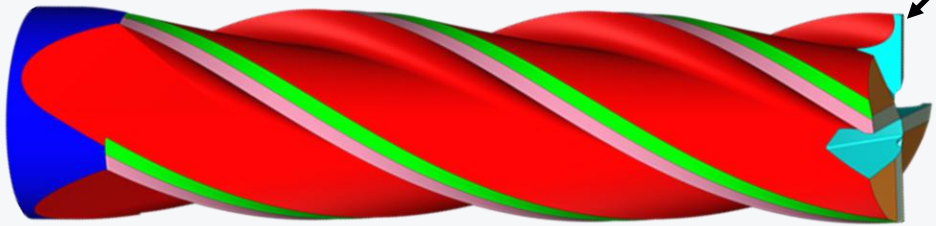




Grind into flute along length 5.1.1

- For end mills with a programmed tip rotation angle, the grind into flute along length is now also displayed.

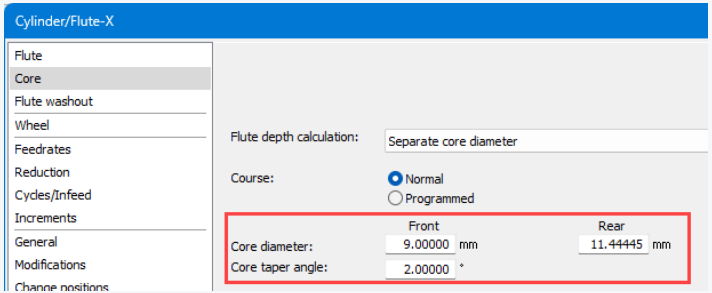




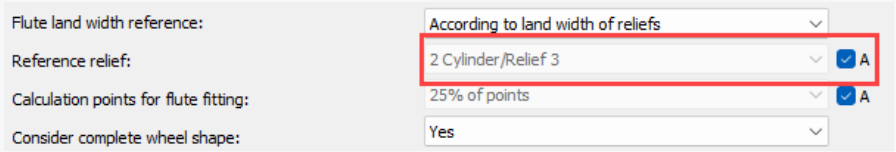
=0.5mm

Flute-X innovations 5.1.1 – 5.2.0

- The separate core diameter can now also be defined using the core taper angle and the ‘front & rear’ core diameters. (5.1.1)



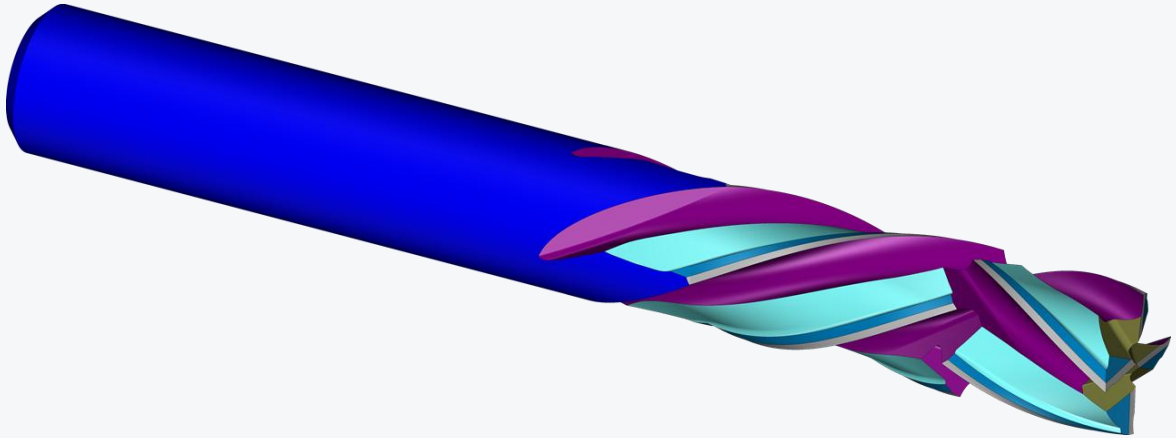
- If the selected reference relief is deleted, the next available relief is automatically used as the reference relief, provided that the corresponding auto-select option is enabled. (5.1.1)



- When creating an XML file, the flute-X is also included in the XML (if available in the program). (5.2.0)

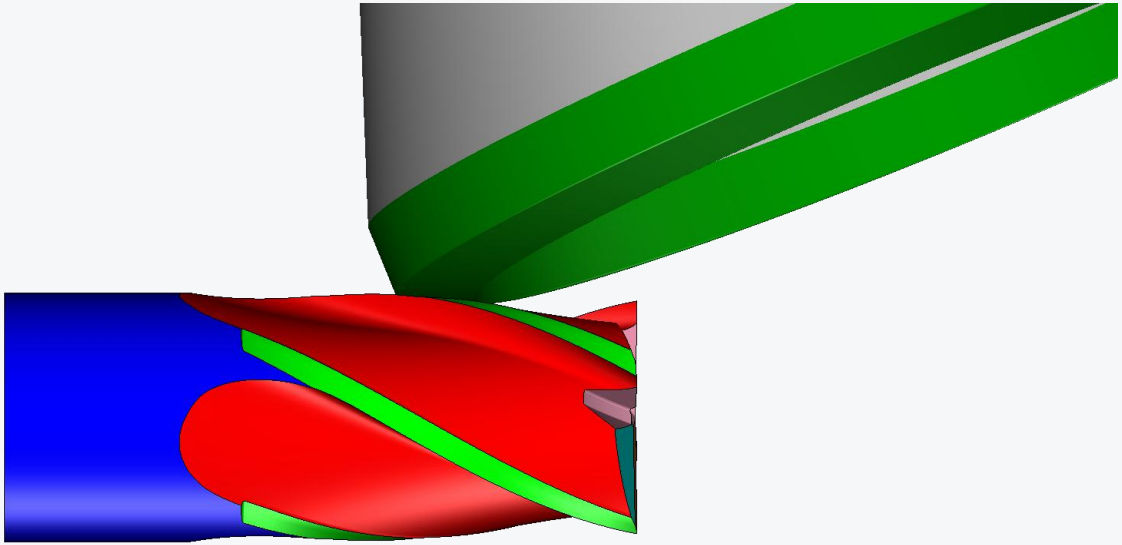
Up & Down End mill innovations 5.2.0

- With the up-down cutter, the cutting edge length of both helices can now be probed. (5.2.0)
- The rotation angle before the probing applies to helix 1 and helix 2. (5.2.0)
- The automatic calculation of the flute length modification works correctly if the sign of the start angle changes based on the probe result. If this is the case, the left flute length modification is reset to 0 when the sign changes from negative to positive. (5.2.0)



Other innovations End mill 5.0.1 – 5.2.1

- For end mills , the increments for ‘flute washout intermediate points’ are now included in the default values and in the operation itself. (5.2.1)
- The side distance is scaled when the diameter changes.(5.1.1)
- Wheel type 11V5 is now also suitable for radial reliefs. (5.0.1)



New features in NUMROTO 5.1.0 – 5.2.2

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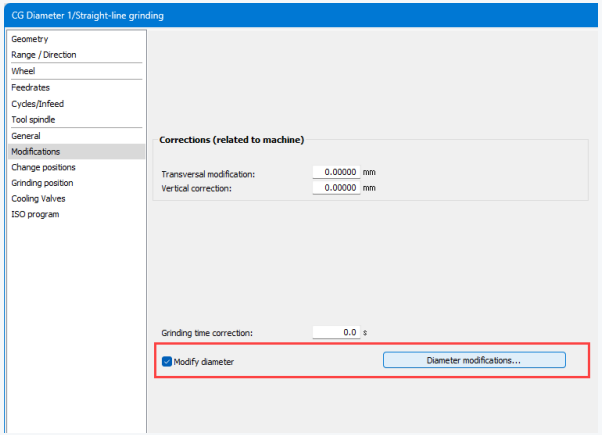
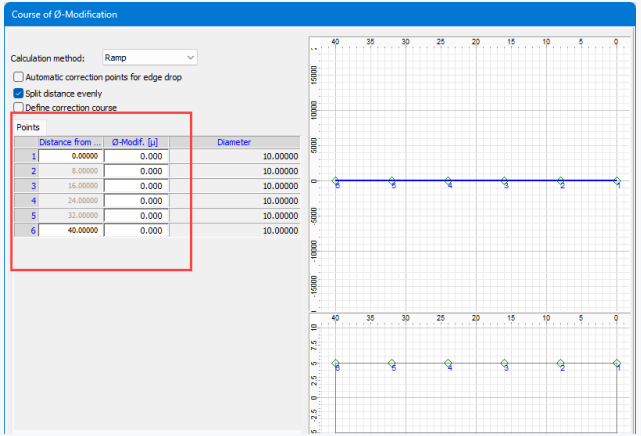
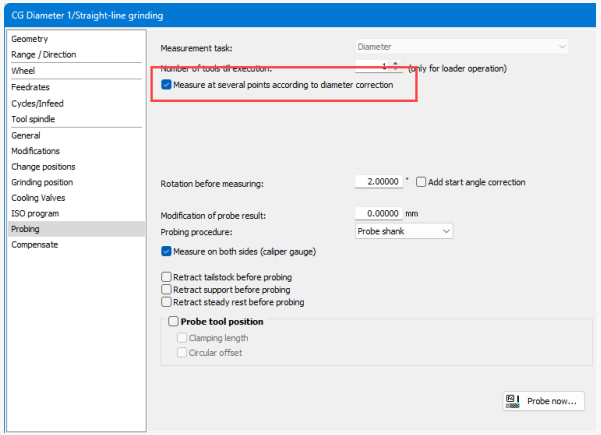
- Planned innovations > 5.2.2

Diameter probing at several points with automatic compensation 5.1.1

- Just like the core diameter, the tool diameter can now also be probed at multiple points.
- This new function is only available for drills within the Straight-line and Form Grinding operations.
- To be able to probe at multiple points, ‘measuring in process’ and the ’modify diameter’ checkbox must be enabled.
- If these conditions are met, the checkbox “Measure at several points according to diameter correction” appears under ‘Probing’.

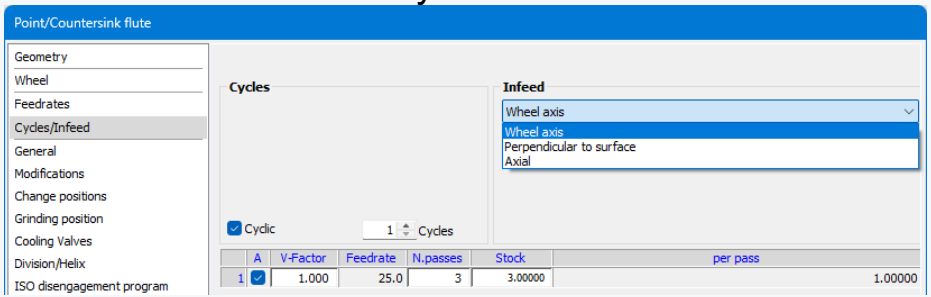


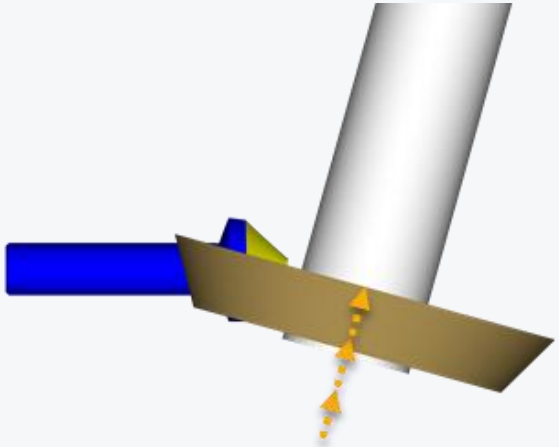


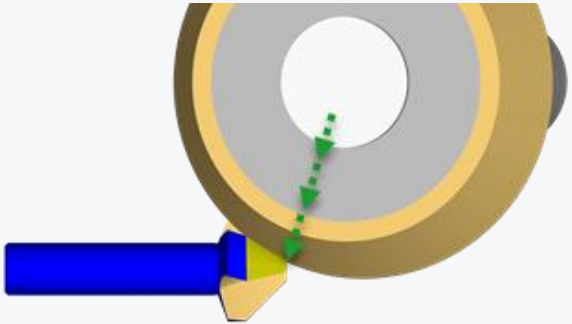


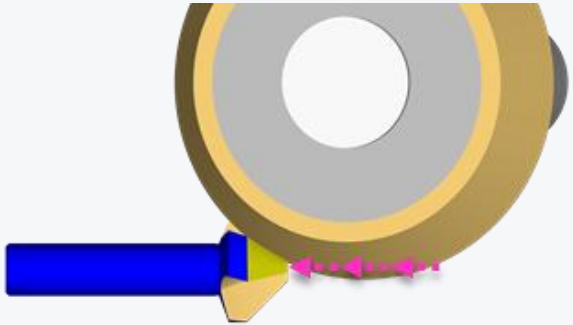
Infeed ‘Wheel axis’ for Countersink flute 5.2.0

- For the countersink flute you can now select the infeed 'wheel axis’. (5.2.0)









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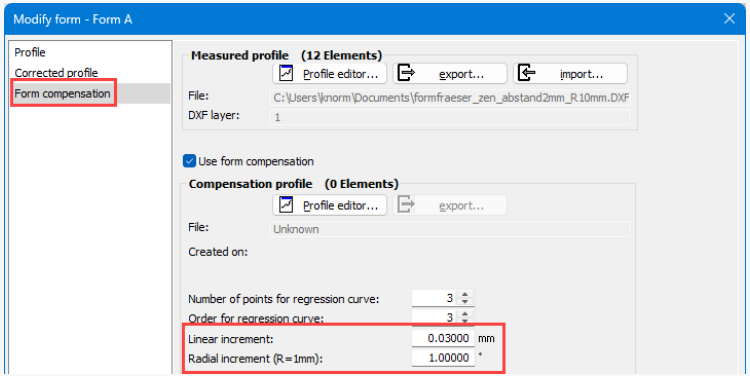
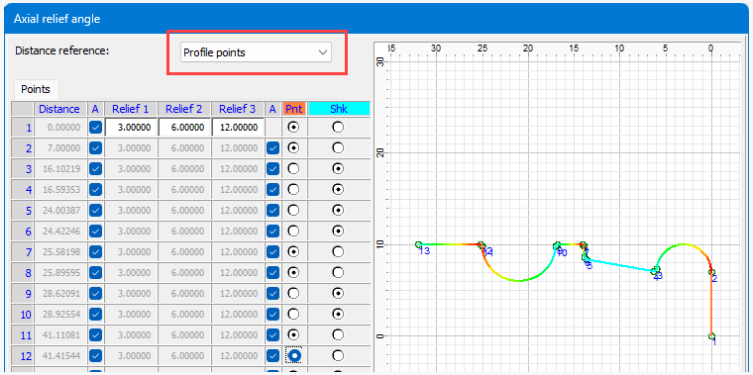
News Form cutter 5.2.0

- In the “Form compensation” dialog, there is now the option to define custom increments (linear and radial increments) for the compensation profile. (5.2.0)

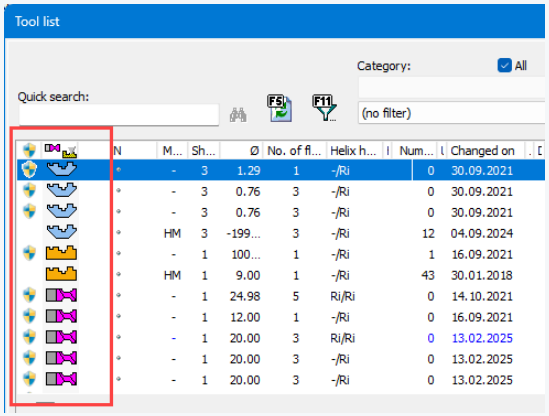


- Similar to the position of the swivel axis, you can now select the distance reference ‘Profile points’ in the ‘Axial relief angle Definition’. (5.2.0)

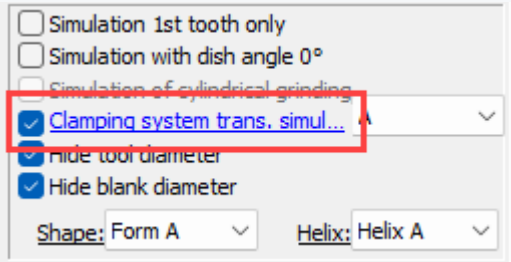


News Form cutter 5.2.1

- Custom ‘preview icons’ for inserts and profile inserts in the tool list. (5.2.1)

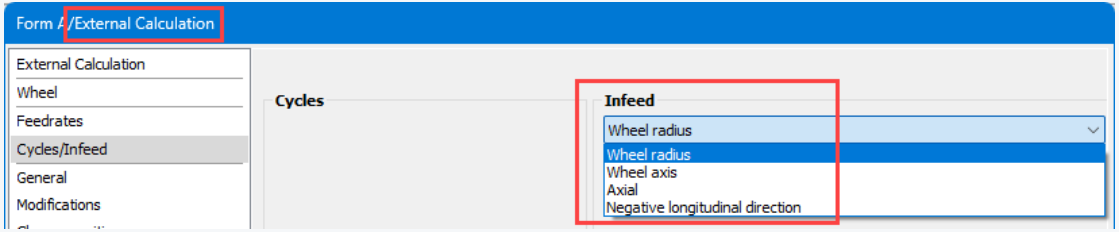


- In the 2D simulation, you can switch directly to the clamping system transformation via link. (5.2.1)

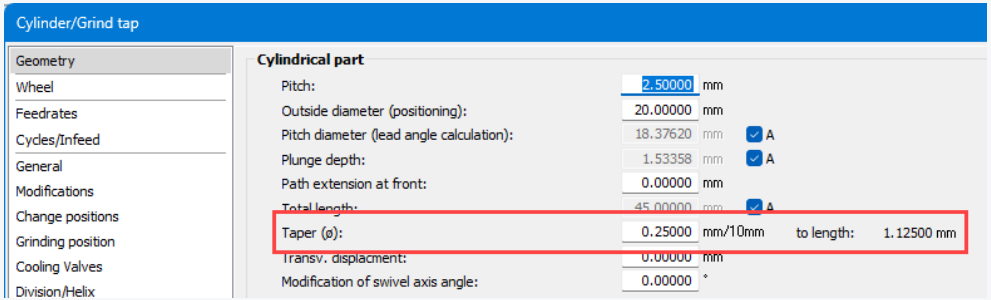


News Form cutter 5.2.0 – 5.2.1

- For ‘External calculation’ the same infeed can be used as for example for end mills and additionally 'in the negative longitudinal direction'. (5.2.1)

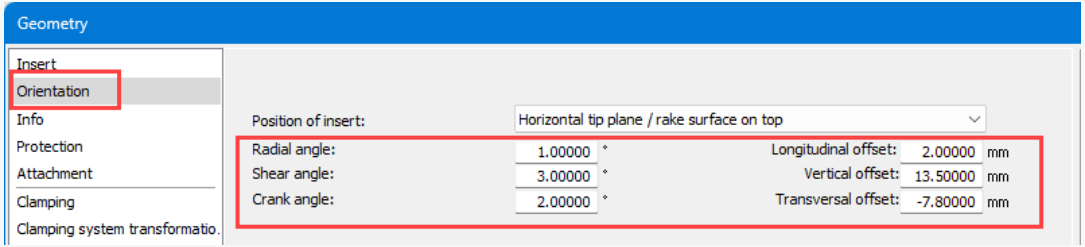


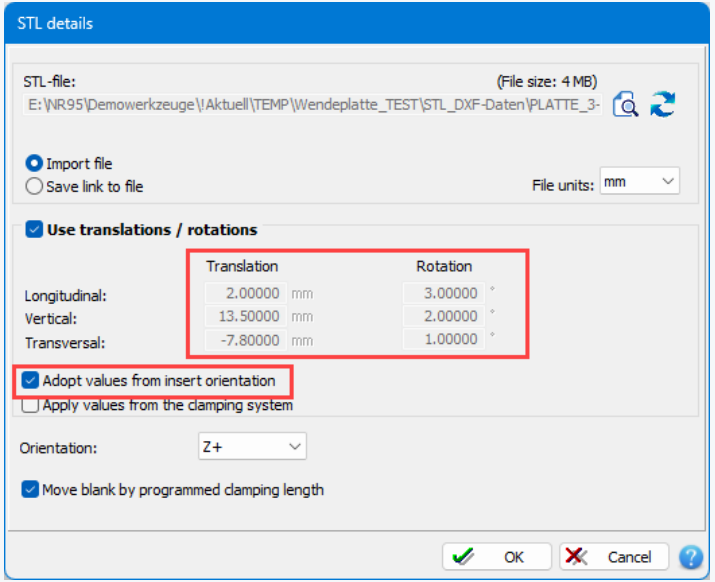
- Tap grinding – display taper to length. (5.2.0)



News Form cutter 5.2.1

- The ‘orientation’ of the insert can be applied directly via a checkbox in ‘STL details – Translation / Rotation’. This ensures that the insert is immediately in the correct position in the 3D simulation. (5.2.1)





New features in NUMROTO 5.1.0 – 5.2.2

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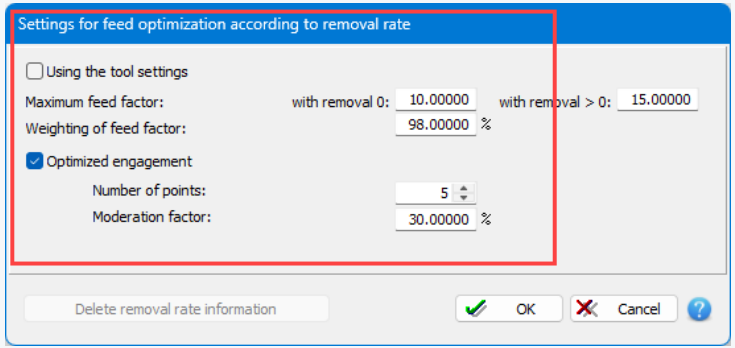
- Planned innovations > 5.2.2

Automatic feed optimization via 3D removal rate 5.2.0

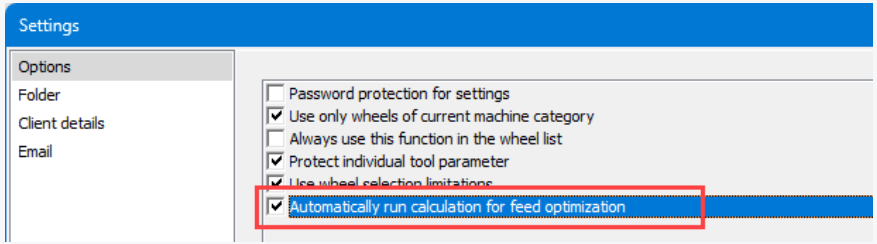
- The new option ‘NUMROTO feed optimization according to removal rate’ allows the automatic optimization of feed rates for nearly all machining operations.
- The following NUMROTO options are required for this:
  CH-50052750 NUMROTO–Feed rate optimization based on 3D removal rate and CH-50052720 NUMROTO-3D special functions
- The feed rate is optimized based on the following information:
  - Maximum allowed QW’ per machining operation
  - Maximum removal rate per machining operation
  - Precise specifications for the blank
  - Exact specifications for the shortening amount and the stock amount on diameter of the blank.
- Please note the following:
  - The increments must be chosen fine enough as needed
  - Engagement routes can only be optimized limited (since it is a distance without intermediate points)
  - Cyclic operations cannot be optimized
  - Reverse finishing is intentionally not optimized
  - Cylindrical grinding operations cannot be optimized

Automatic feed optimization via 3D removal rate 5.2.0

- Setting per operation (also available per tool and in the settings)

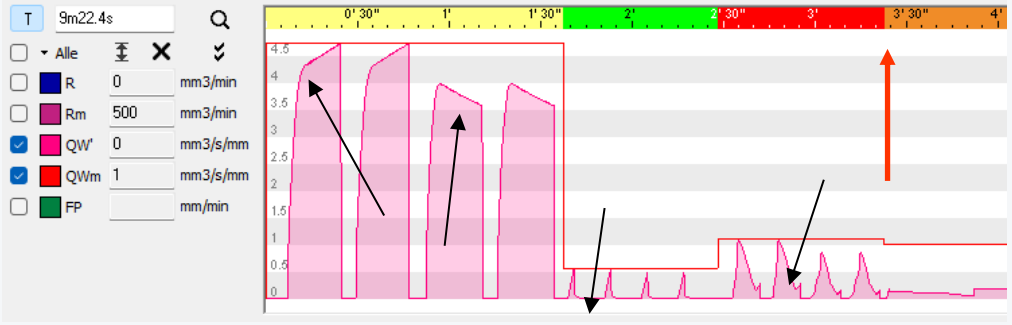


- Calculation settings (manual mode recommended when using NR-Control and measuring in process)

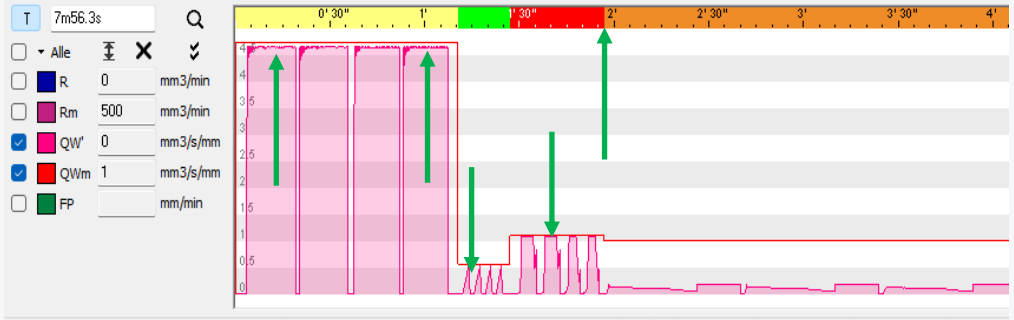


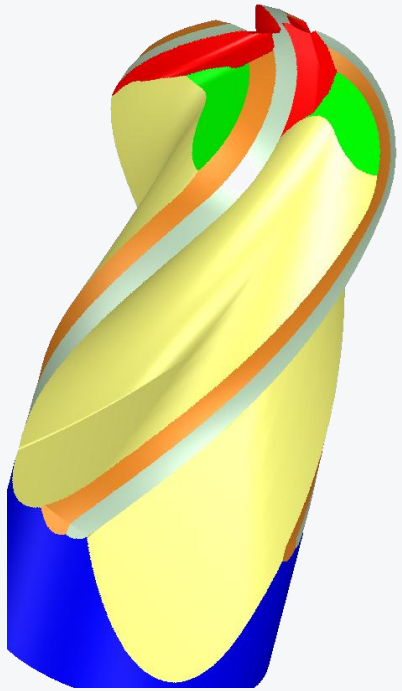
Automatic feed optimization via 3D removal rate 5.2.0

- Example of a flute (multi-helix), ball clearance and gash-out, machining time: 9m22s



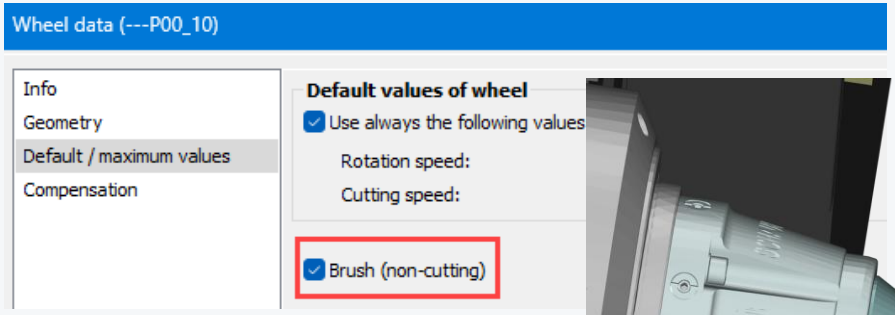
- 3 machining operations optimized, machining time 7m56s (relief intentionally left unoptimized)

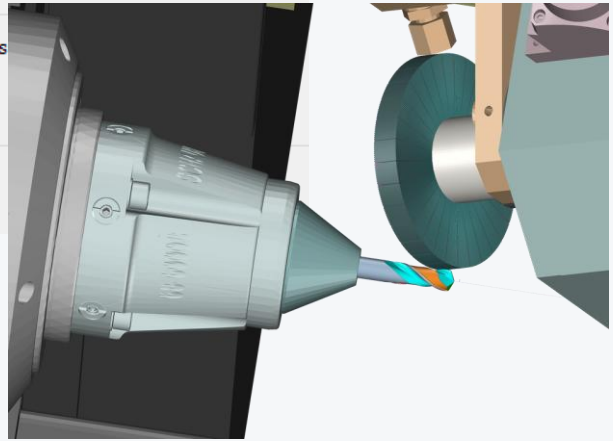


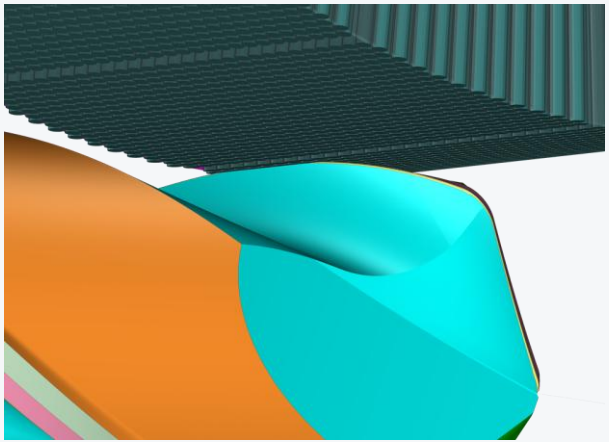


New checkbox per wheel ‘Brush’ 5.1.0

- New checkbox in wheel data ‘Brush (non-cutting)’.
- Such a wheel / brush does not remove any material in the 3D simulation.
- This allows to precisely analyze the position and orientation of the brush in relation to the cutting edge.
- The wheel which is defined as a brush, is also shown like that in the 3D simulation. (5.2.0)

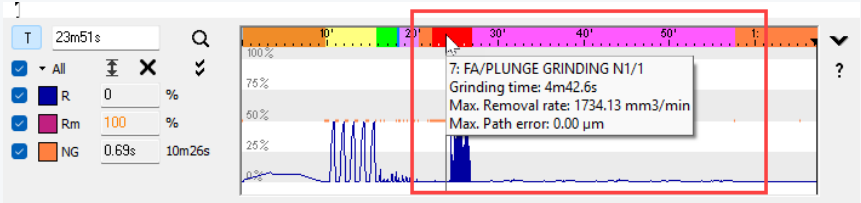




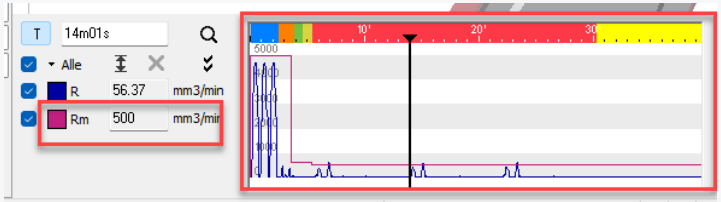


News 3D-Simulation 5.2.0

- The grinding time is now displayed as a ‘tooltip’ for each operation when you hover the mouse pointer over the timeline in the graphical analysis window.



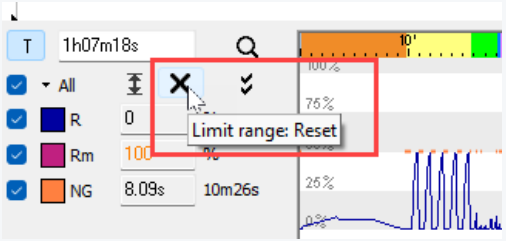
- Just like the maximum QW’ value, the maximum removal rate is now also shown on the graph.



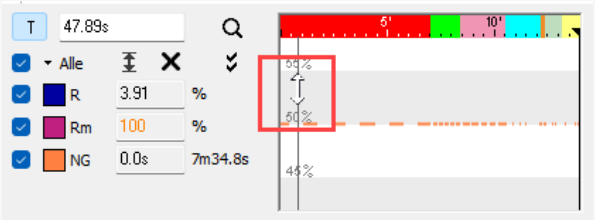
- Additional values have been added to the model resolution for 3D collision detection.

News 3D-Simulation 5.2.1

- The 3D simulation now includes a button to reset the ‘limited range’ in the graph analysis window.

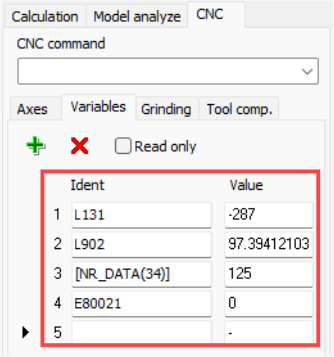


- You can now zoom vertically in the graph analysis window by scrolling the mouse wheel while the cursor is positioned at the left edge of the window. While this has always been possible by using the Ctrl key in combination with the mouse wheel, a white arrow now appears when the mouse cursor is positioned at the left edge of the window.

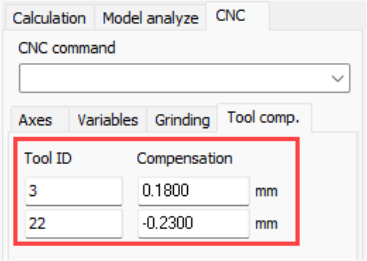


Other innovations 3D-Simulation 5.2.1

- In the ‘CNC’ section of the 3D simulation, the variables defined are now logged during the simulation. This ensures that the correct values for each variable are always displayed when reviewing a simulation.



- It is possible to simulate wheel compensation in the 3D simulation. However, this new view only appears if wheel compensation is active somewhere in the program.



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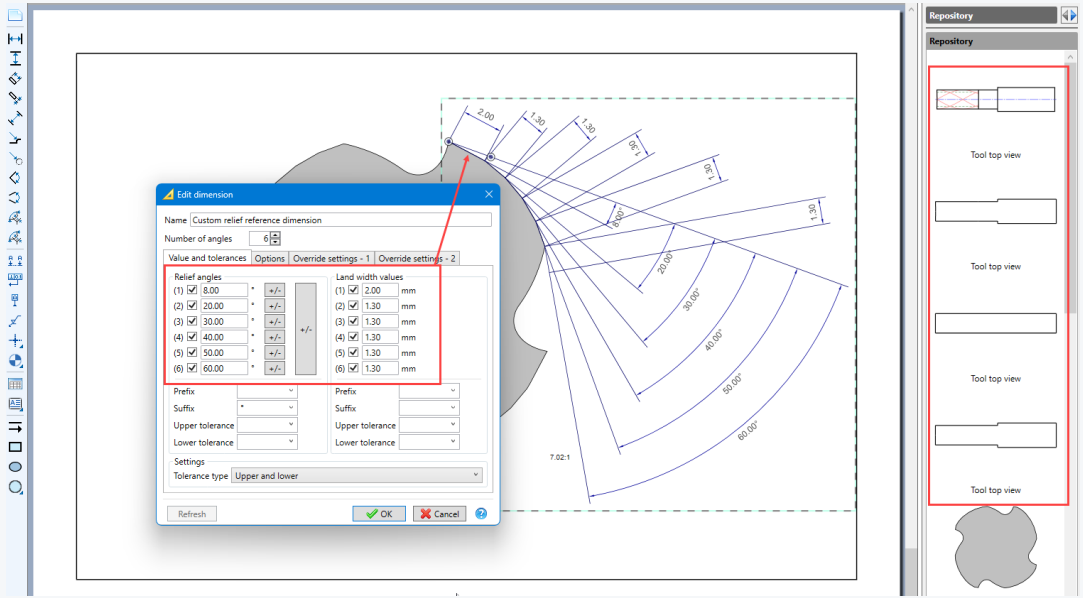
News NR-Draw 5.2.0 – 5.2.1

- The values for land width and relief angle are now automatically retrieved from the tool program and entered accordingly. (5.2.0)
- The parameters ‘Programmed form’, ‘Cylindrical’, ‘Blank geometry’, and ‘2D Profile (DXF)’ of the blank are now transferred directly from NUMROTO to NR-Draw as a potential ‘tool top view’. (5.2.1)



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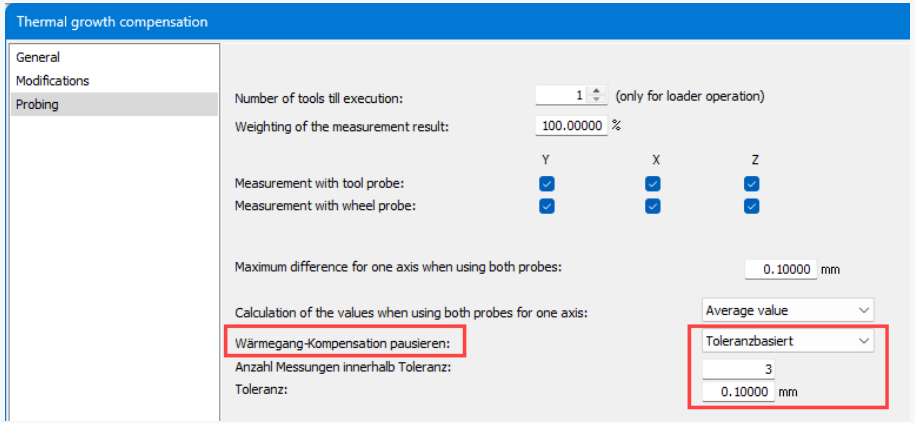
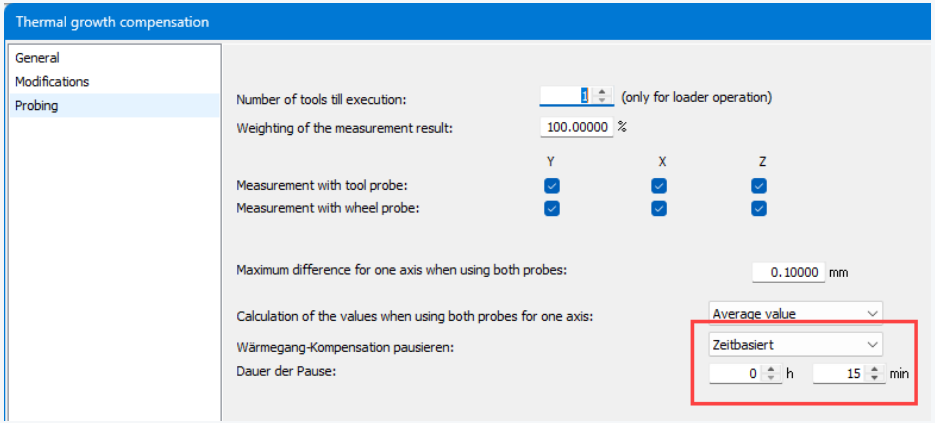
Thermal growth compensation ‘pausing’ 5.2.2

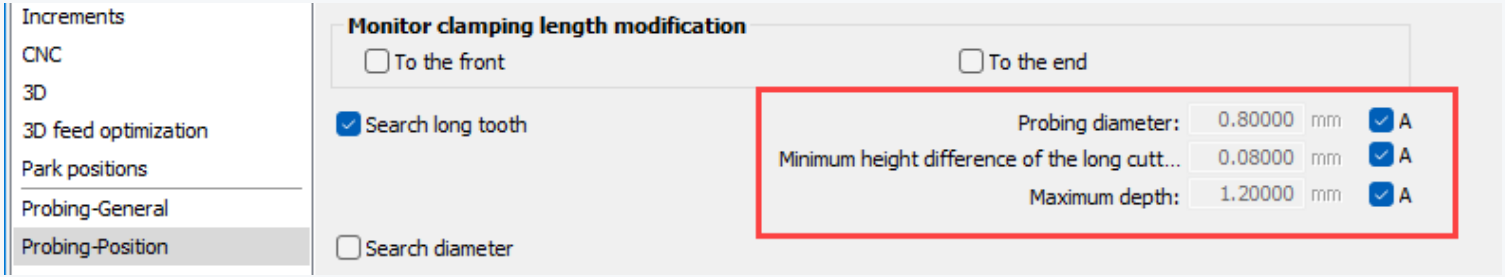
- Thermal growth compensation (TGC) can be paused on a ‘time-based’ or ‘tolerance-based’ basis.
- This function is intended for use with NUMROTO Control, and once the relevant condition is met, the TGC is paused until the end of the active job.
- Tolerance-based = Thermal growth compensation is paused when a certain number of measurements fall within a defined tolerance.
- Time-based = Thermal growth compensation is paused after a defined period time.
- Both versions work with the tool probe and the wheel probe.





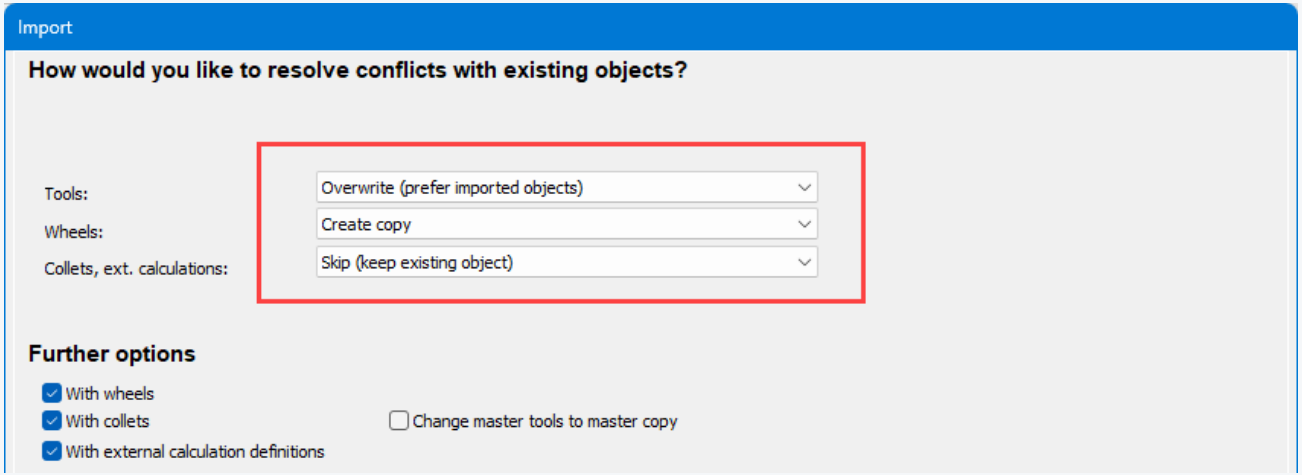
Search long tooth 5.2.1

- The probing sequence can now be defined more detailed.
- Probing diameter: Specifies the diameter at which the long tooth is searched. The automatic percentage value can be defined in the default values.
- Minimum height difference of the long cutting edge: There must be at least this difference between two teeth to be recognized as a long tooth.
- Maximum depth: The depth to which the probe is inserted to locate the long tooth. If contact with the cutting edge is not established within this distance, the probing process is aborted.



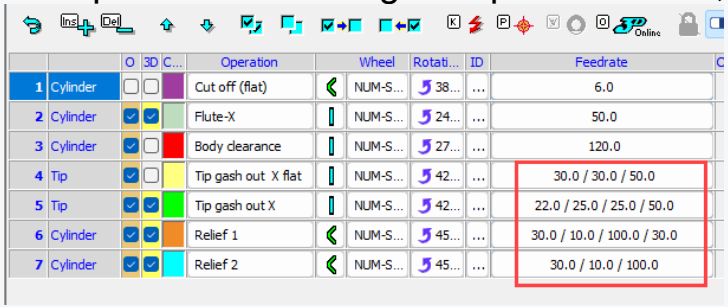
New Import functions 5.2.0

- New import dialog with various options for importing wheels, programs, and collets.
- Overwrite (prefer imported objects) = Data from the import program is given priority.
- Create copy = Existing objects are duplicated and saved as copies.
- Skip (keep existing object) = existing objects are retained.



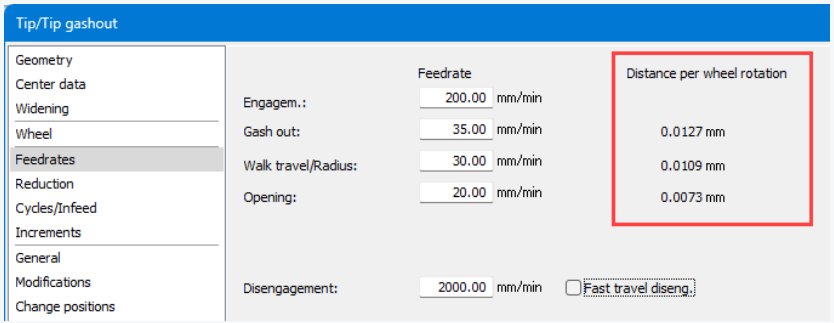
General News 5.2.0

- For operations involving multiple feed rates, these are now clearly displayed in the ‘feedrate’ section.



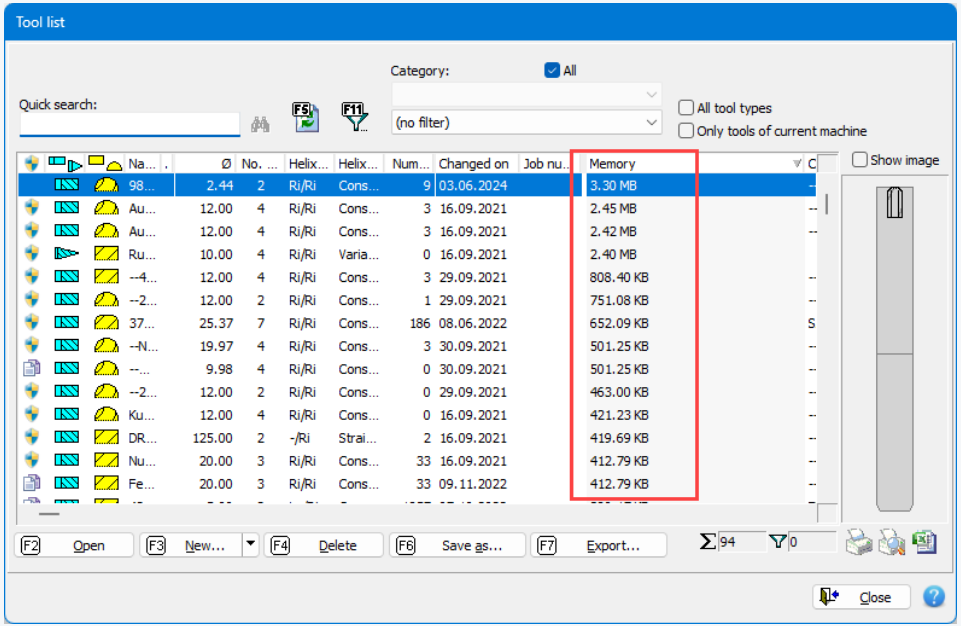
		O	3D	C...	Operation		Wheel	Rotati...	ID	Feedrate
1	Cylinder	☐	☐		Cut off (flat)		NUM-S...	38...	...	6.0
2	Cylinder	☑	☑		Flute-X		NUM-S...	24...	...	50.0
3	Cylinder	☑	☐		Body clearance		NUM-S...	27...	...	120.0
4	Tip	☑	☐		Tip gash out X flat		NUM-S...	42...	...	30.0 / 30.0 / 50.0
5	Tip	☑	☑		Tip gash out X		NUM-S...	42...	...	22.0 / 25.0 / 25.0 / 50.0
6	Cylinder	☑	☑		Relief 1		NUM-S...	45...	...	30.0 / 10.0 / 100.0 / 30.0
7	Cylinder	☑	☑		Relief 2		NUM-S...	45...	...	30.0 / 10.0 / 100.0

- You can see the distance per wheel rotation. (Depending on the feed rate and the wheel rotation speed)



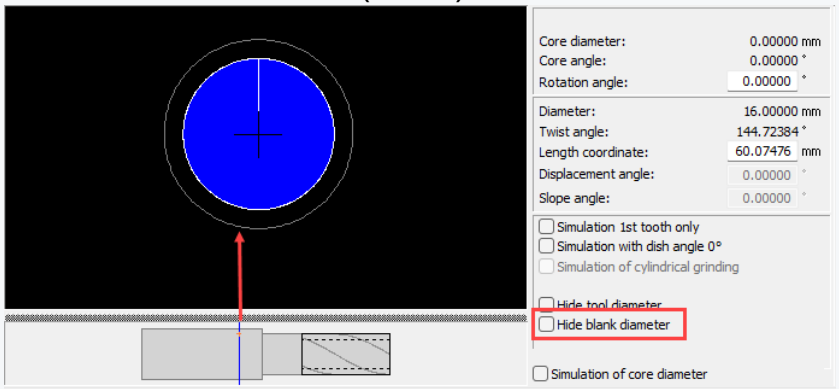
General News 5.2.0

- In the tool list, tools can be sorted by memory. The memory refers to the size of the attachments in the tool program.

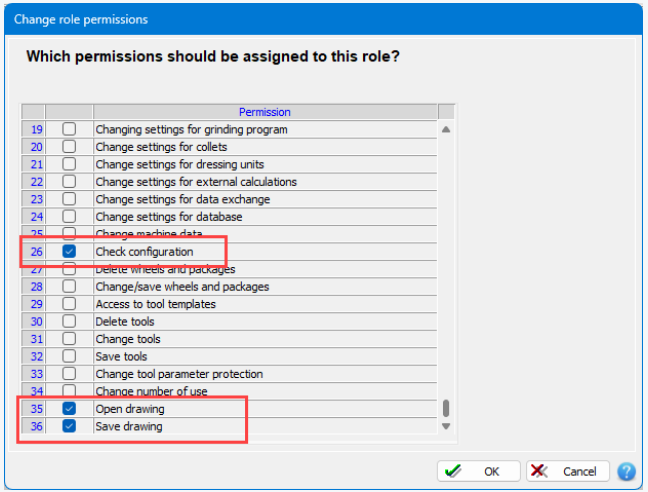


General News 5.1.0 – 5.2.2

- Hide blank diameter. (5.2.0)



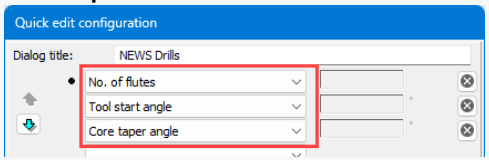
- More role permissions like Open / Save drawing and Check configuration. (5.1.0 / 5.2.0)

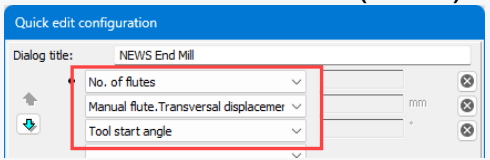


General News 5.2.1

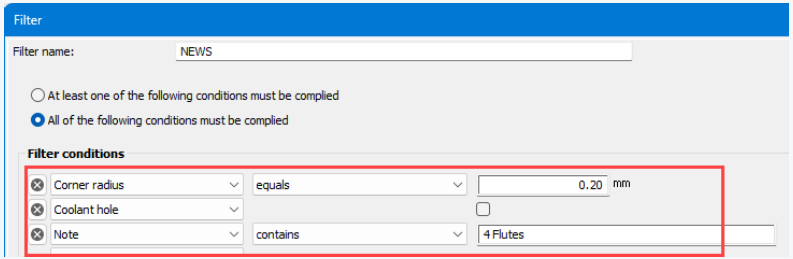
- Display wheel measurements after probing during dressing. (5.2.1)

- New parameters in Quick edit for drills and end mills. (5.2.1)



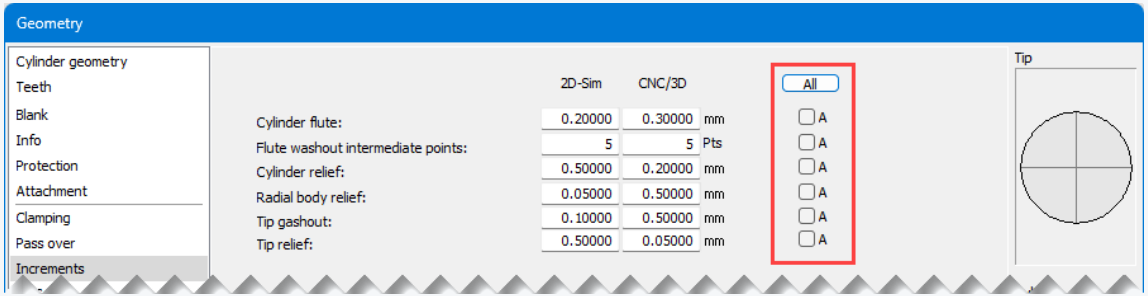


- New options for the tool filter (corner radius, coolant hole and note). (5.2.1)

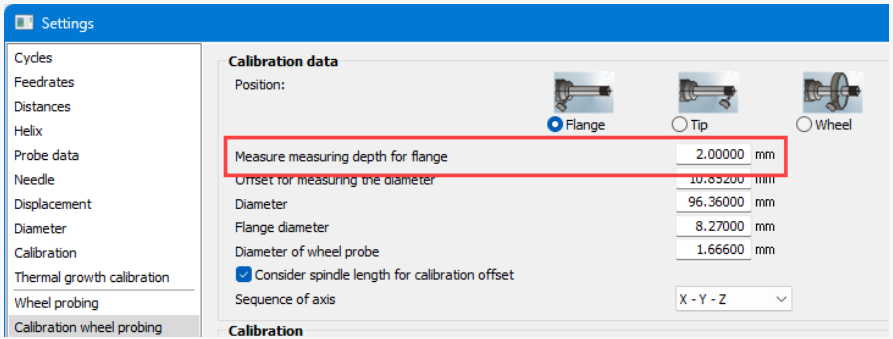


General News 5.2.1

- The checkboxes for the increments can be selected or deselected all at once.

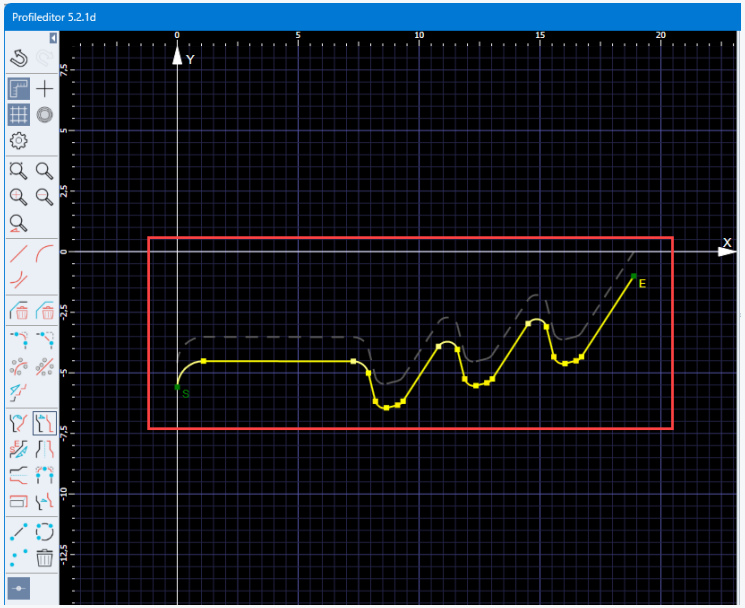


- When calibrating the wheel probe , the ‘measuring depth for flange’ can be programmed. Previously this was a fixed value.



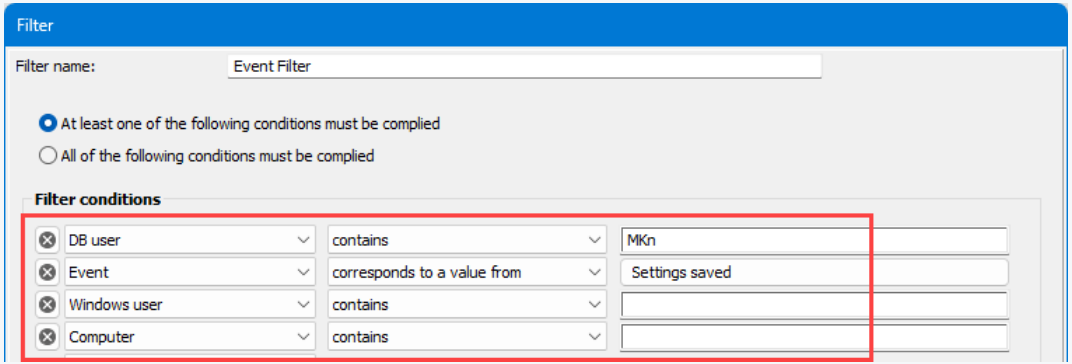
General News 5.1.1

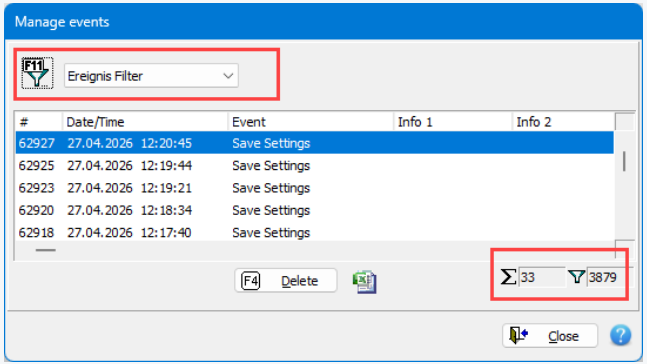
- A comparison profile is displayed in Profile Editor X
- A comparison profile is useful for example, when calculating a wheel profile or performing form compensation to clearly see the difference from the previous profile.



General News 5.0.1 – 5.2.2

- The event display has included a filter function since version 5.0.1.
- Since there are sometimes issues with logging or displaying all events, you can use the ‘Filter function’ to narrow down the events.
- Optimized display of a large number of events. (5.2.2)





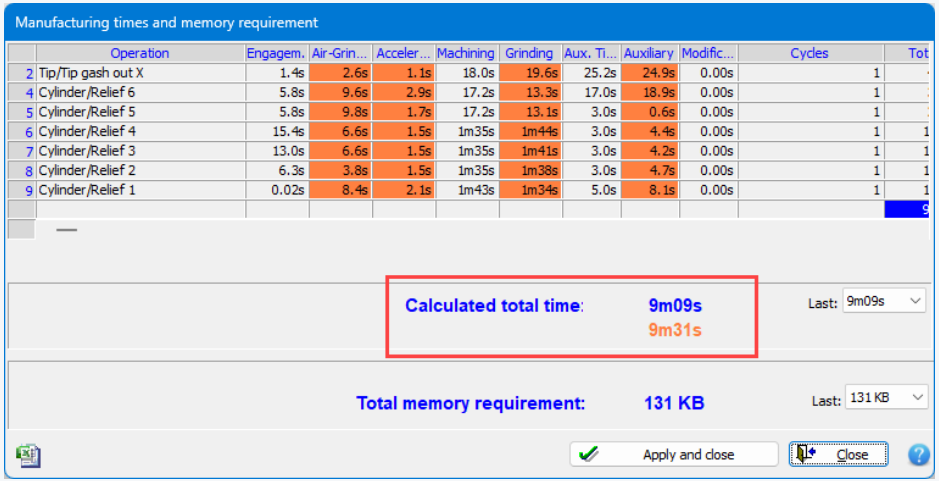
New features in NUMROTO 5.1.0 – 5.2.2

numroto

- End mills
- Drills / Step drills
- Form cutter
- 3D-Simulation
- NR-Draw
- Other topics
- Planned innovations 5.2.2
- Planned innovations > 5.2.2

Plannend innovations 5.2.2

- Retrieve the offset angle for the probe result after probing the coolant hole.
- Measuring in process (diameter) for rough profile.
- Grinding time calculation with values of the 3D simulation.



New features in NUMROTO 5.1.0 – 5.2.2

numroto

- End mills
- Drills / Step drills
- Form cutter
- 3D-Simulation
- NR-Draw
- Other topics
- Planned innovations 5.2.2
- Planned innovations > 5.2.2

Planned innovations and changes > 5.2.2

- Consider form wheel profile for flute X.
- Around end of 2026 (probably with NUMROTO version 6.0) Windows 7 and 8 will no longer be supported. The minimal Windows version will then be Windows 10.
- NR-Draw – more parameter in the tool parameter table.
- Simulating grinding program splitting in 3D simulation.

Thank you for your attention.