Software changes

easyGrind
SMP TECHNIK

VERSION 6.08

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Probing

Blade probe

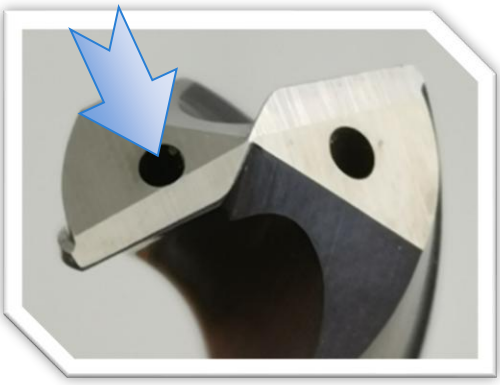
It is now possible to probe with this new probe shape. Probing cycles are faster, and can



even be more accurate.

Probing oil holes

Probing of oil holes also works in the case where the oil hole is larger than the radius of the probe (which goes inside it)

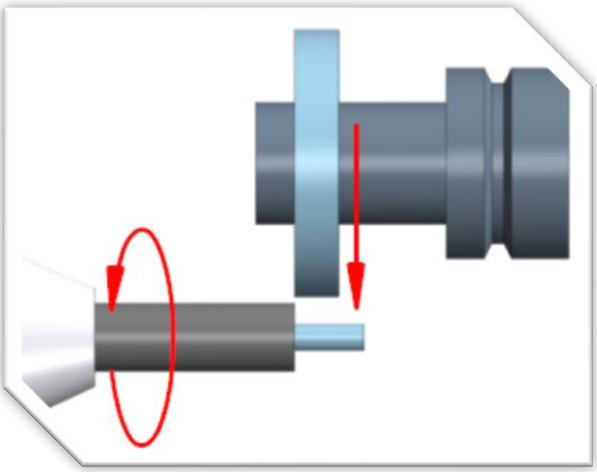


Machining

Manufacturing drills

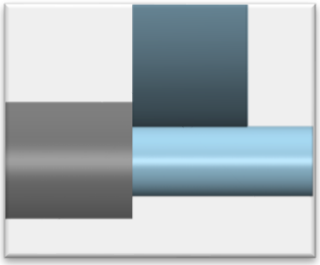
It is now possible to fully manufacture a drill from a round bar, making maximum use of cylindrical grinding (with continuous rotation of the A axis). Thanks to this improvement, manufacturing times are reduced.

Improvement to the "STAGE 1 PLUNGE" job

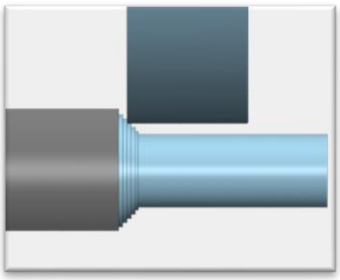


Method P:
This job allows roughing of the cylindrical part of the stage, as well as the stepped part.

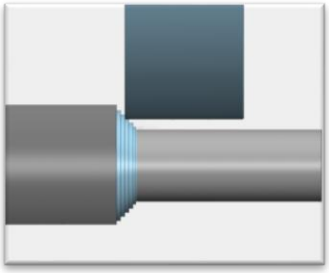
1- on the diameter



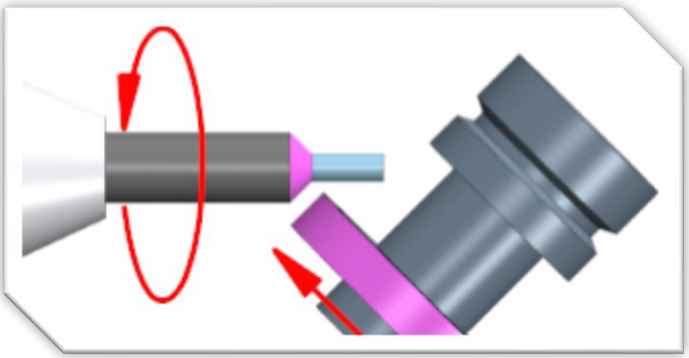
2- on the diameter + step



3- on the step only

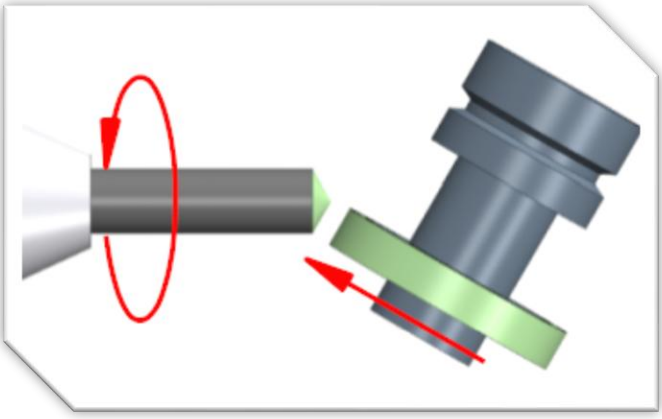


Creation of the "STAGE 1 ROUGHING" job



Method P:
This job allows roughing of the stepped part by cylindrical grinding

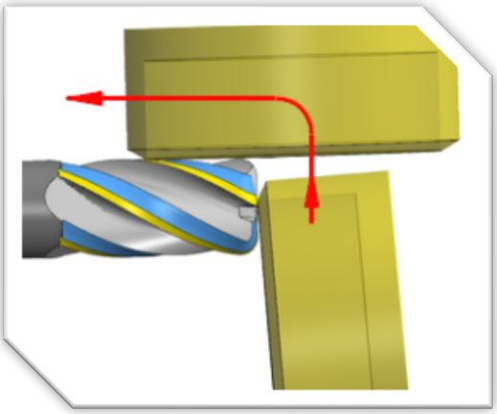
Creation of the "TOOL TIP ROUGHING" job



This job allows roughing of the tool tip by cylindrical grinding

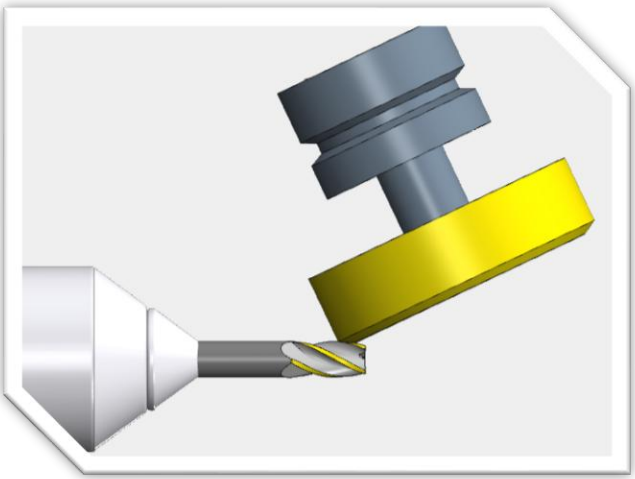
Machining mills with a 6V5 wheel

Continuous relief on a radiused mill





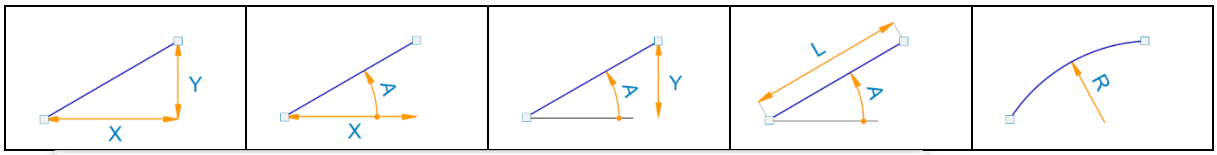
Curvilinear relief

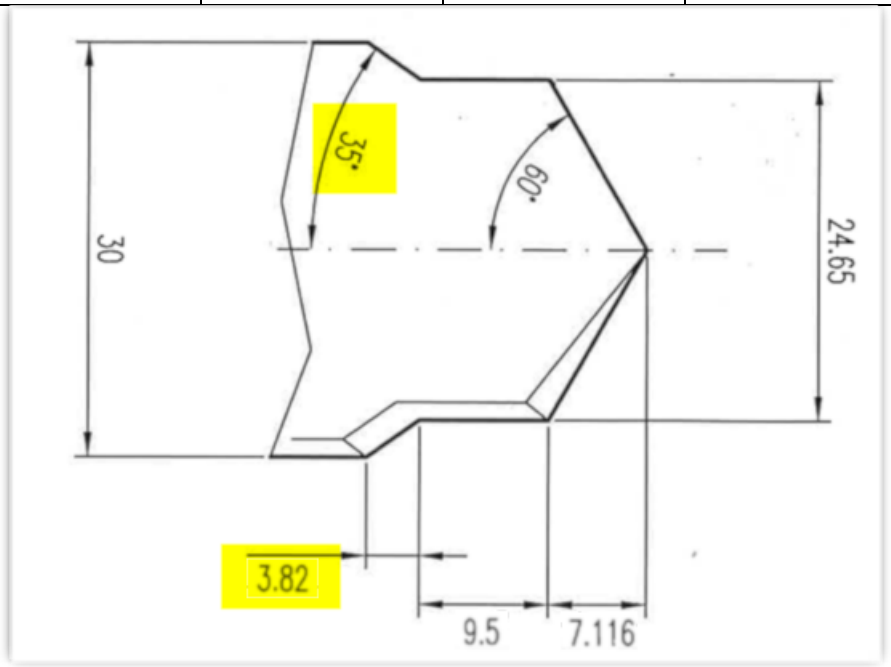


Form tools

Entering profiles by elements

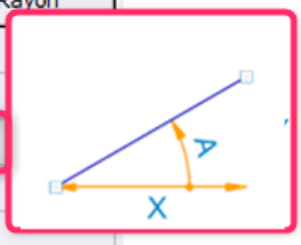
To describe a profile, it is now possible to enter dimensions that can be read directly from the drawing.

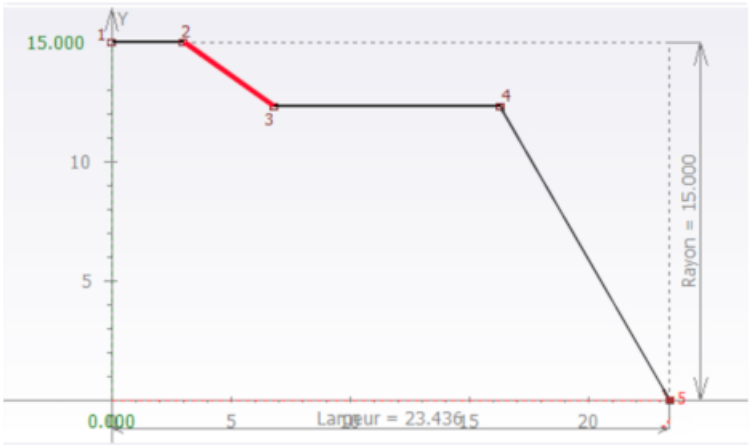




Définition du Profil - Elements

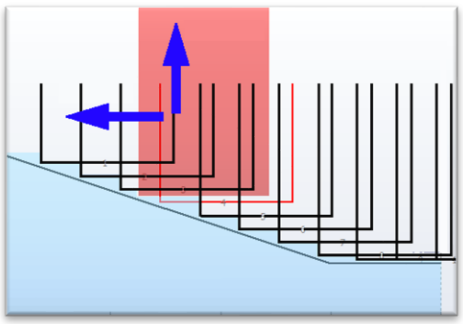
No	Type	Ø Début	Ø Fin	Lx	Ly	Angle	Rayon
1	Début						
2	Segment (Lx Ly)	30	30	3	0	0	
3	Segment (Lx Angle)	30	24.65	3.82	-2.675	-35	
4	Segment (Lx Ly)	24.65	24.65	9.5	0	0	
5	Segment (Ly Angle)	24.65	0	7.116	-12.325	-60	



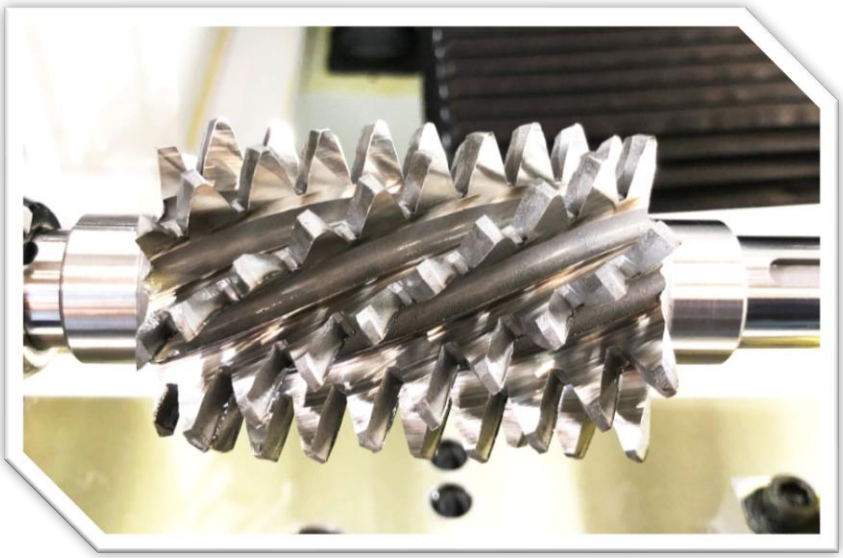


Roughing by plunges

During plunge roughing, it is now possible to customize the plunges being machined. This option, originally created for mills and inserts, is now available on all profiles (drill point step form and square drill, reamers, form grinding).



Helical hob



- Helical hob: calculation of the wheel shape for grinding the straight rake face in the helix. Caution, the phase shift cannot be negative (a safeguard has been added on the value)

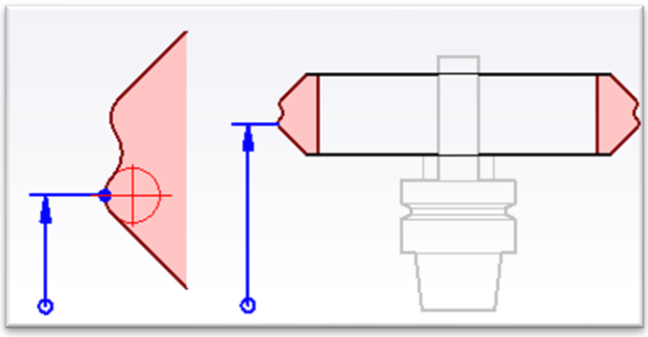
- Rake face with a large helix: B can be reversed for sharpening the cutting edge (works in grinding and in dressing)

-Fixed: the division check on a helical hob now works (the probe automatically shifts in X to find the correct thread on the next tooth)

Roughing mill

Measuring the wheel more easily

The W measurement has changed: it is now measured on the large diameter, regardless of the wheel's mounting direction. This makes measuring easier and gives much more accurate results.



The old definition is kept. For existing customers, they have access to a new parameter: "W Measurement":
- Default = as before, Lm is used to offset W
- Large diameter = new definition

Describing the number of wheel starts

Number of starts = 1 *Number of starts = 2*



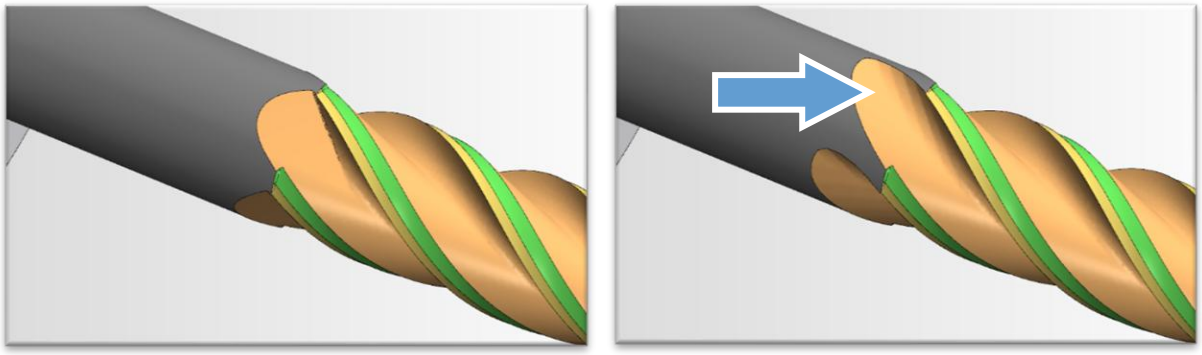
Machining the roughing mill

Method B allows different tools to be machined with the same wheel shape. This method has been made more reliable, and works regardless of the cutting direction and the helix direction. It is no longer necessary to have a separate wheel model for each mill model.

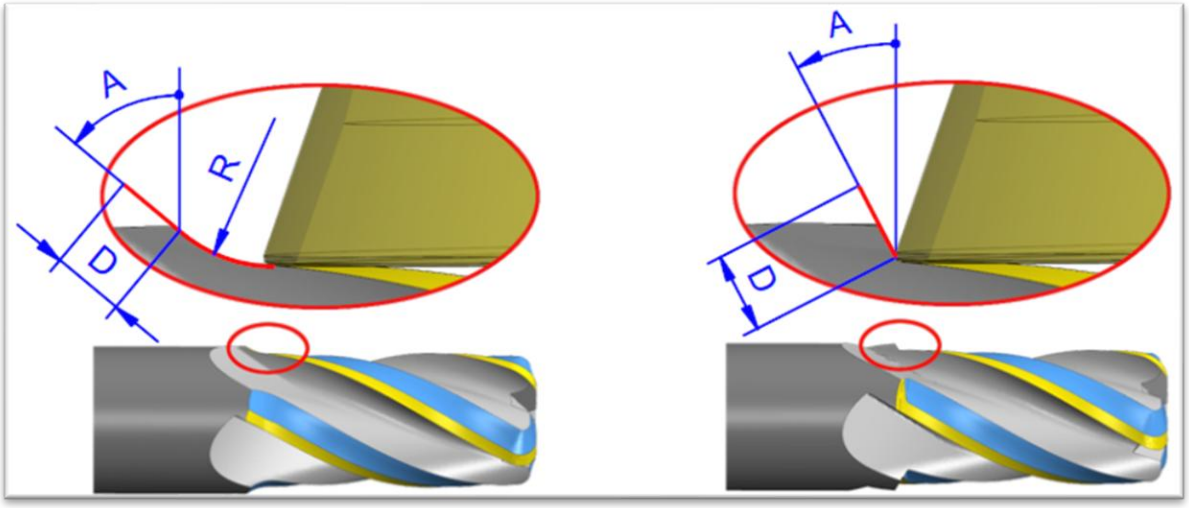
All machining cases have been verified (see the "Fixes" section for more details).

Clearance at the end of the mill flute

Improvement to the clearance at the end of the flute



Clearance at the end of the mill relief



Manufacturing a Straight Pinion tool

It is now possible to rough the rake face with a roughing wheel and finish with a wheel that is regularly diamond-dressed ("Sweep FACE" job)



Inserts

Method R "rolling"

rake face job: added the "flute slope" parameter, which allows the toolpath to be tilted

rake face job. Added Method D: wheel diameter. Added the "offset" parameter, visible only with Method D

-Fixed: the plunge job was not taking into account the custom value in the job for the "Wheel incidence" parameter. The customer had entered 180° in the general wheel incidence and consistent values in each job).

the rectangular blank (drawn around the profile) was poorly positioned in the simulation as soon as the setup angle was non-zero.

Also included

- **Drill, "Flute" job**: Added **start & end overtravel**

- **Drill, "Step chamfering" job**: Added the options **"Reverse B"** and **"A+180 Rotation"**

- **Drill, "Back-off" job**: the **angular offset** between the forward and return path of the wheel can now be set

- **Ho, Su type drill, "End Flute" job**: added a Radius+Angle clearance **similar to type B**. Creation of 2 working methods:
  D = as before / B = with clearance

- **Drill, cutting the Flute with a form wheel**: a DXF file can now be imported for the flute shape. This then calculates the wheel shape.
  The 2D simulation now finally allows the machined result to be compared with the theoretical DXF profile

- **Concave broach**: added the **"X Offset"** and **"Tooth Depth Mod"**

- **Reamer, "Rake FACE" job**: Added the options **"Reverse B"** and **"A+180 Rotation"**

- **3-lip mill, "Flat FLUTE" job**: Added the options **"Reverse B"** and **"A+180 Rotation"**

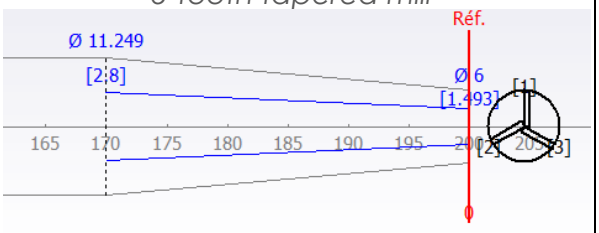
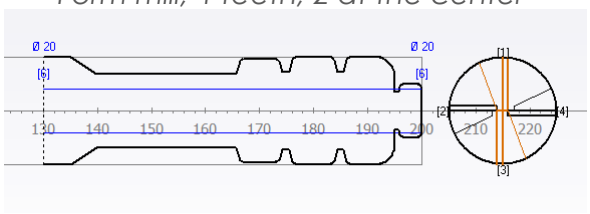
- **Chamfer mill, "BACK-OFF" job**: this job has been added (identical to that of ball-nose mills)

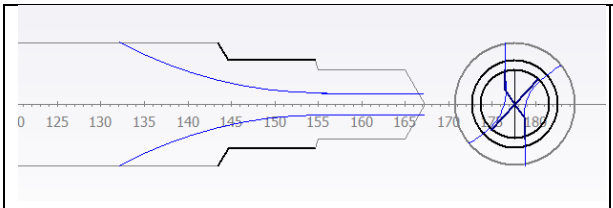
- **Mill, "S-type END FLUTE" job**: it is now possible to **slow down the speed** at the bottom of the form and at the exit of the form. (Also applies to "Continuous FLUTE" & "Continuous Radius FLUTE" jobs with a geometric shape, and to "SPOT GRINDS").

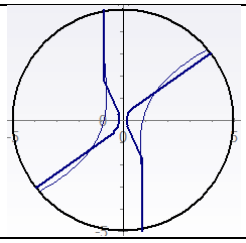
General use

Permanent 2D view

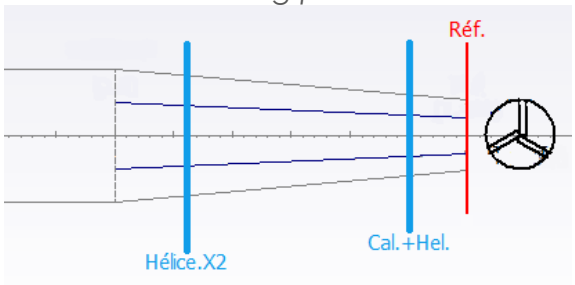
The software displays a schematic view of the tool that updates as soon as a parameter changes. Here are a few examples of representations…

3-tooth tapered mill 	*Form mill, 4 teeth, 2 at the center* 
Stepped drill	*Type B thinning on a drill*

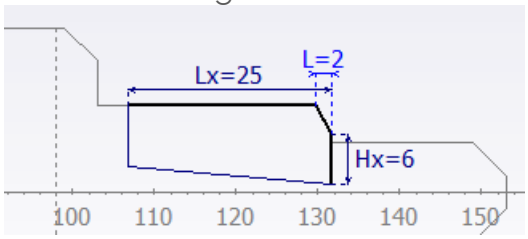




Probing planes



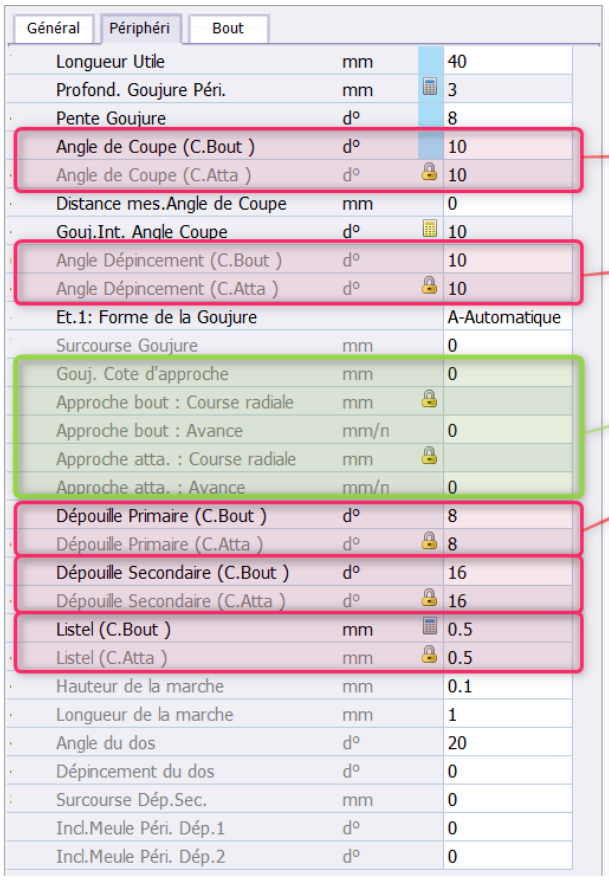
Dimensioning of reamer entries



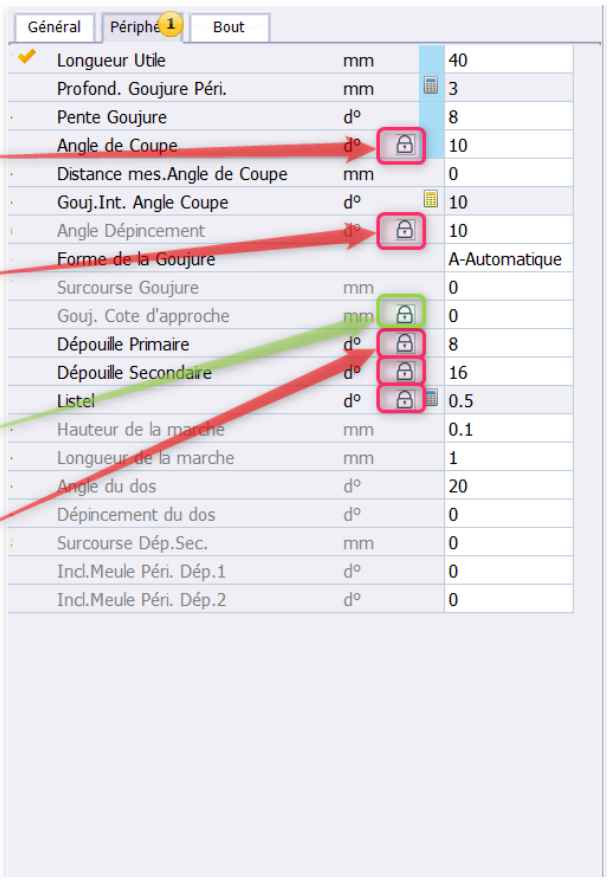
Fewer parameters on screen…

Below, the example of a tapered mill

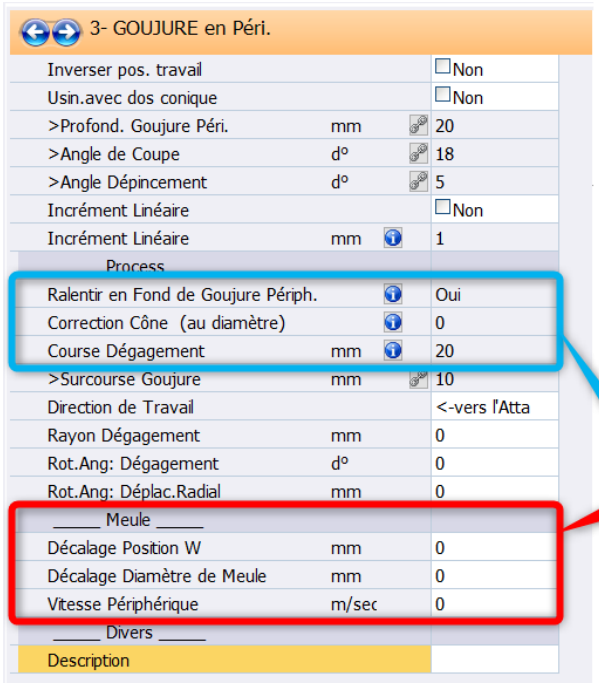
Before



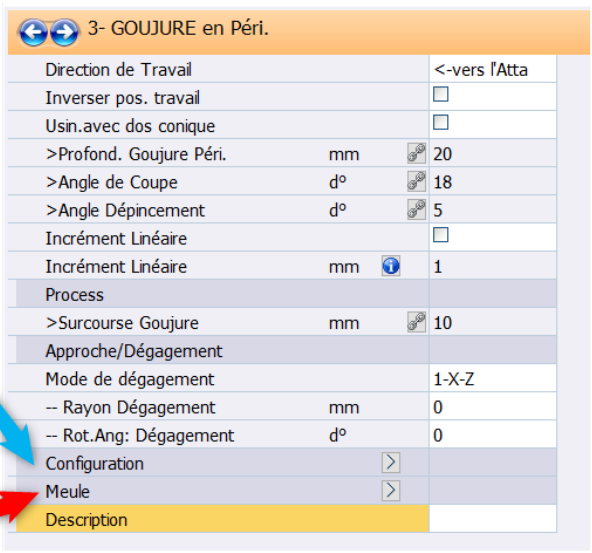
After



Before

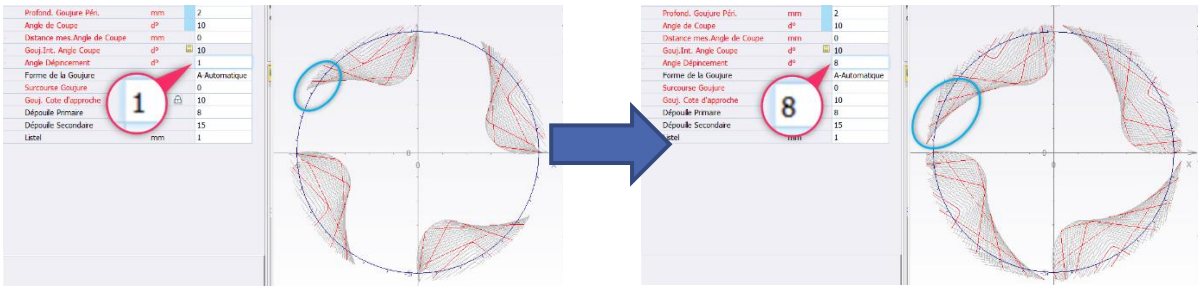


After



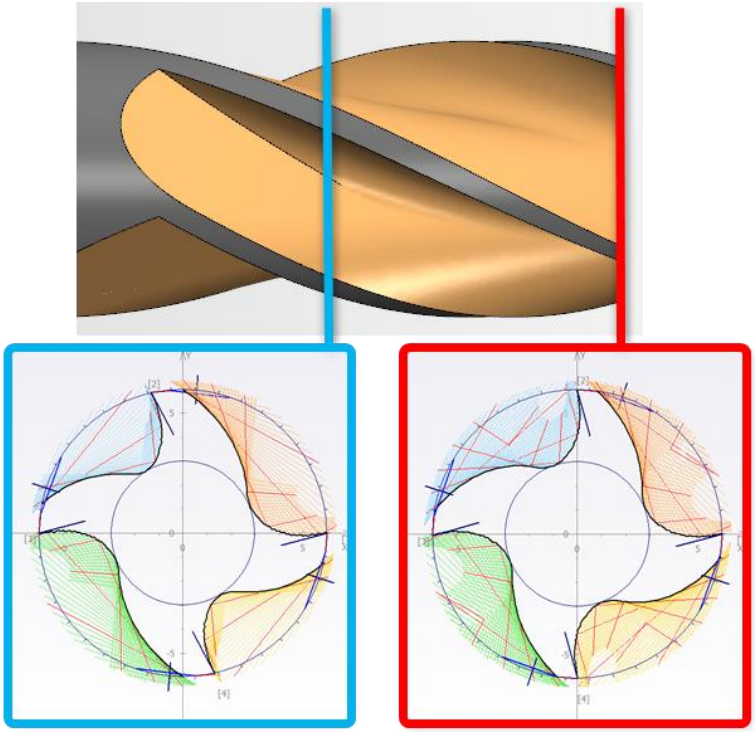
2D simulation of the Flute

The software offers an immediate 2D simulation for the flute. You can change the flute parameters (such as the offset, for example) and see the result immediately.



This works on multi-tooth mills, and in particular allows you to quickly check the width of the tooth back.

Below, example of a 4-tooth mill, 2 helices at 30°, 2 helices at 25°



Also included …

Configuration profiles

Ability to have one profile per machine for PC method.

CNC backup

Ability to restore archived programs. Standalone program: eNCBackup, which can be called from eNavigation/Maintenance

eSim

It is now possible to choose a default tool holder in eSim

Multiple tool rests

It is now possible to add tool rests in addition to the steady rest. These rests are managed via fully customizable activation and deactivation codes in the configuration

Fixes

Machining Roughing mill

-Fixed: Multi-tooth mill: If the Ext Roughing form is machined before the end flute, the first tooth of the end flute is incorrect

-Fixed: Multi-tooth mill: the rotation on the tooth was calculated incorrectly, -160 had to be entered in the "angular overtravel" parameter to obtain a consistent rotation.

-Fixed: Multi-tooth mill: the X offset from one tooth to another was not being applied

-Improved: Multi-tooth mill: cycle A has been removed (as it does not work).

-Fixed: Uneven division mill: cycle A was not working

-Fixed: Standard or uneven division mill: cycle A without offset was not working!

Machining Other tools

-Fixed: **MILL WITH RELIEF VARYING AT TIP AND SHANK** In the tool parameters there is relief on the tip side and the shank side. On the job page, the relief on the shank side was missing

-Fixed: **Radiused Tip MILL, 3 teeth at the center**, continuous relief 'I'-reversed cycle: there was a collision in ISO. For information, it has been possible to have 3 teeth at the center since 5.12, and the I-Reversed cycle never worked)

- Fixed: **Mill, calculation of the Tip Wheel Incline**: the new calculation mode must not change the position of the wheel on chamfer mills (Reminder: it changes on Radiused tip, Ball-nose tip, secant Ball-nose tip)

-Fixed: **MULTI-TOOTH BALL-NOSE MILL**: The "Lip/axis distance" dimension was not working on the center teeth

-Fixed: **Tapered mill**, CNC Error on **Sphere BACK-OFF** The CNC displays error 107 on the block that machines the radius with G2/G3 (The error occurs if the mill is tapered and the clearance angle is non-zero. Never worked in this case).

-Fixed: **Radiused mill, center tooth and uneven division**: the long and short reliefs were not being machined on the correct teeth

-Fixed: **Left-hand cutting mill**: the relief on a multi-tooth mill was incorrect (land not parallel

-Fixed: **Left-hand cutting mill**: the tooth back was incorrect

- Fixed: **Mill, End flute method G**: It sometimes crashed, and sometimes not (because certain values were not initialized in the calculation).

-Fixed: **CENTER TOOTH MILL, End Flute** poorly positioned:
In the following case: 3 teeth, 1 center tooth, different offset on the center tooth and the other teeth, two long flutes, the second long flute was poorly positioned.

-Fixed: **VARIABLE PARAMETERS in PERI on Multi-tooth Mill**: several parameters are now duplicated so they can be made to vary between the tip and the tool shank

(cutting edge, offset, relief, land). When the main parameter was differentiated, the locked parameter was not. As a result, a tool that was OK with 6.06 (before these parameters were added) no longer was in this version.

-Fixed: **Multi-tooth mill**: since version 6.07, it has been possible to vary certain parameters along the diameter (Relief, land, offset in the flute). The toolpath should not be discretized systematically, as this generates too many unnecessary points.

- Fixed: **Mill, END RELIEF**: removal of the warning message when the relief is large

-Fixed: **Drill, Land Tip**: bug on the primary relief (relief angle not respected)

-Fixed: **Square drills**: Flute, the 3/4 1/4 clearance travel was not customizable

-Fixed: **Square drills**: Reverse B was not working

-Fixed: **Square drill: the "Step 1 X" job** could produce positions X1000000 Y1000000 Z1000000

-Fixed: **Square drills**: Added custom approach/clearance when reversing B without rotA180

-Fixed: **3-lip mill with profile**: the extra stock allowance was no longer working.

- Fixed: **3-LIP MILL, one tooth**: when the mill has 1 tooth, the tool makes 1 full turn at the end of the tooth before retracting. The A360 movement has been removed

- Fixed: **FORM 3-LIP MILL and Left-hand Cutting**: The signs of the reliefs had to be reversed

-Fixed: **Hob** (bug present since v.6.05 inclusive): Tool declaration problem that caused the hob-specific parameters to disappear

-Fixed **Hob** (bug present since v.6.05 inclusive): no longer calculated the Helisurf wheel shape for a helical hob

-Fixed: **Hob division probing**: when the mill has helix, it must be taken into account when positioning in A from one tooth to the next

-Fixed: **G2/G3 DRESSING** could generate CNC errors.

-Fixed: **NUMBER OF PASSES** greater than 99 now possible in ISO (G77 N104 N299 SL114 replaced by several lines G77 N104 N299 S99)

-Fixed: **ASPI BLADE, left-hand cutting**: collision when the end relief (B 45°) is combined with the stage relief (B 135°) using the same wheel.

-Fixed: **Flat broaches**: The "Tooth Depth Mod" parameter was hidden

-Fixed: **Broach probing**: In %115 on Flexium+, the L150 value is truncated before it is displayed

-Fixed: **ROUND BROACH TANGENTING UTILITY**: The number of passes retrieved has been changed

-Fixed: **Splined broach**: when declaring a left-hand helical spline, it did not offer the choice of division (equal or unequal). The default choice was then "unequal division"

-Fixed: **"Grinding" job**: For a grinding job, in plunge mode, with a wheel wider than the ground area. If facing is requested, no facing was performed at all, and in addition it caused the wheel to strike next to the ground area. This bug has been fixed.

-improved: **"Grinding" job**: added facing speed

-Fixed: **"Grinding" job**: Grinding in special tools: Added a safeguard: for offsets from one tooth to another, if in a grinding job, no offset is applied in A

-Fixed: **"Grinding" job**: Grinding in mills: conflict between continuous rotation and wheel change

-Fixed: **"Grinding" job**: Grinding on an ASPI Blade (was shifting in X by an odd value)

Probing

-Fixed: **Multi-point wheel probing** has been finalized. Requests wheel rotation before probing to avoid an error message

-Fixed: **Probed helix**: access violation when the probed helix table is empty

-Fixed: **Under-profile probing**: change to the setup search algorithm:

eSim

-Fixed: **FEPA 1E1 wheel**, the drawn angle could not be less than 150 (even if 10° was entered)

-Fixed: **Cylindrical wheel** does not simulate

-Fixed: the **"overhang"** of the Dish wheel (between the cutting and non-cutting part) was drawn incorrectly. Consequence: simulation of an end flute on a mill gave an incorrect offset!

-Fixed: the **"overhang"** of the wheel was not saved when modified in the numaffut.ini editor

-Fixed: The **dressing** job was shifting the colors and jobs in the simulation

-Fixed: improvement to the **wheel drawing** with radii at the tip. WARNING: if the wheel does not move and does not machine in eSIM, try setting the overhang to zero (numaffut.ini [SIMULATION_3D] Debord_Meules=0)

-Fixed: problem during simulations: the **rotary divider** is forced to 4 (regardless of the divider in the CNC)

-Fixed: **Simulating the wheel hub** The diameter of the hub shaft adapts to the diameter of the wheel.

Miscellaneous

-Fixed: **Wheel dressing**: Infinite loop & waiting message issue that appeared when it should not, during the robot campaign test, as well as during the campaign itself

-Fixed: in the **tool preview** (in the 'Open tool...' menu), the tool description is always visible (the comment is hidden if the text is too long)

-Fixed: **Ball-nose Mill**, distance/axis dimensioning: The "Lip/axis dist." parameter had no label if the "Lip length" (instead of "distance/axis") was dimensioned.

-Fixed: **P16 software**: added support for VG300 and VG500 machines for image display

-Fixed: **CA5 wheel changer**: fine-tuning of the M6TXX robot wheel changer

-Improved: **VG300 wheel changer**: updated the M6TXX type changer program (Flexium+) to manage the 10-slot changer

-Fixed: **VG300 wheel changer**: 10-slot changer with reverser: use of E20000 (0 = position 1-5; 1 = position 6-10) to avoid parking the V axis on every wheel load

-Fixed: Error when **reading a tool file** (especially if it contained images)

- Fixed: **3-LIP MILL, Bench entry**: control is lost when measuring a parameter at the bench

- Fixed: **PROFILE method G**: removal of the "Check wheel incline" message (displayed if set to -10°)