TYPE EDIT
SOFTWARE SOLUTION

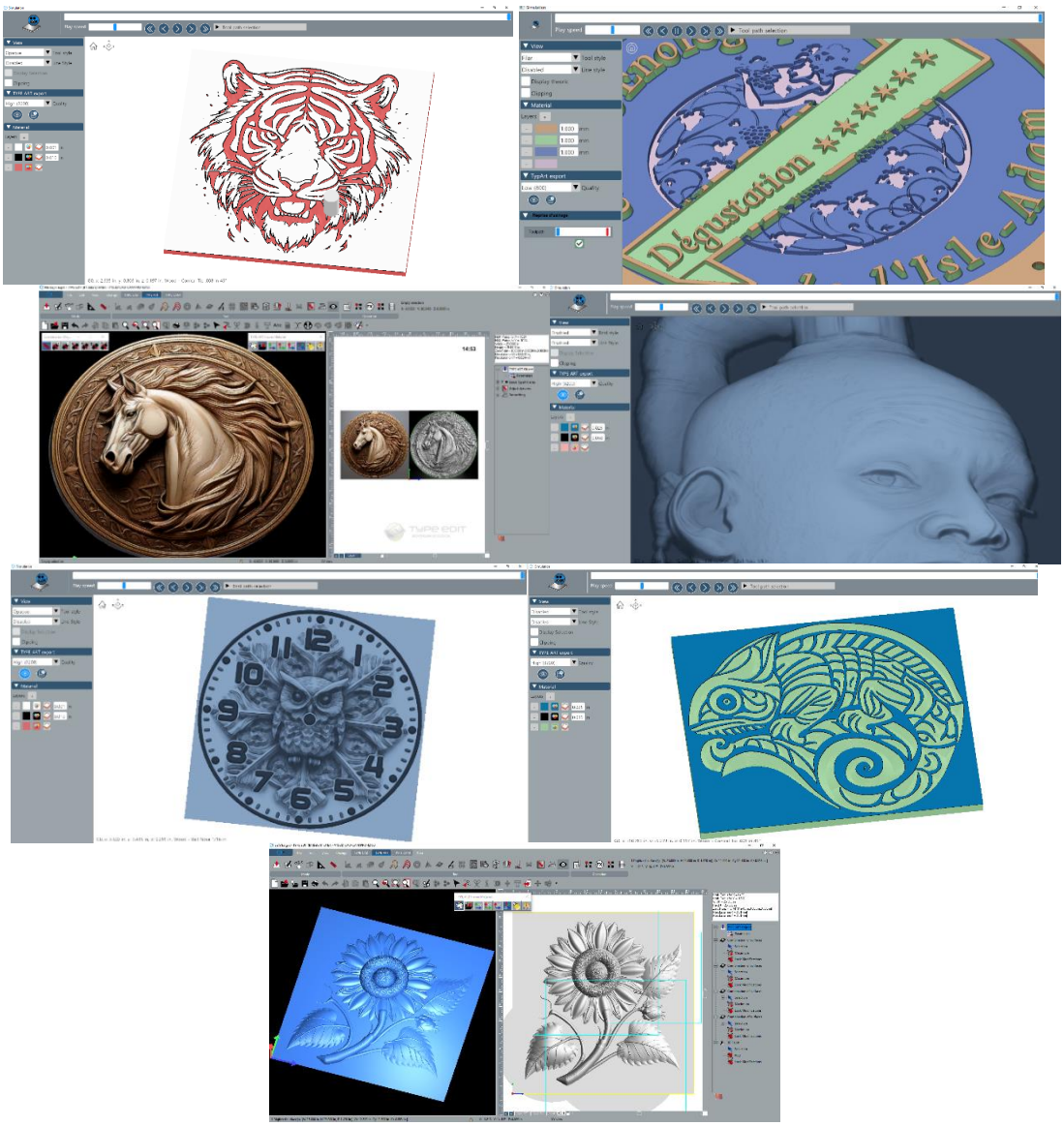
LASER TYPE
SOFTWARE SOLUTION

WHAT'S NEW IN V15…?

This “What’s new?” document is aimed to describe the latest features and enhancements introduced by **TYPE EDIT & LASER TYPE** Software within their release of the Version 15.

With this new version, new Toolpaths emerge, such as the “**Cutter”** bringing advanced trajectories for cutting foam and vinyl materials, as well as the new **“Sequence Cutting-Chamfering”** allowing a higher finishing of parts, or the brand new and flamboyant “**Simulation NC™”**, which will allow you to boast your creations and design skills even further.

Coming with this new release there are a multitude of CAD and CAM parameters which have been revisited and improved to lift even more your machining capabilities with direct settings and actions easier to understand and foresee their actions within the cut. Our teams have endeavored to offer V15 Users an additional choice of tools and illustrations to control and visualize 3D modeling within the “**3D CAD module - TYPE ART”**. The standard Installation has been completely overhauled, in compliance with the current standards of Microsoft Windows and its security recommendations.



TYPE CAM SOFTWARE SOLUTION

In this new V15 version, the CAM module has been strengthened as the focus of our attention and strategy. Our aim is to open new markets and new applications for our customers and partners.

This is why we have developed 2 new toolpaths: a Cutting - Chamfering Sequence and a Cutter tool path that has been significantly revised to keep pace with the latest innovations in this sector.
Also worth noting is a brand-new NC Simulation ™, using innovative new display technology, which gives highly realistic results of actual machining. Precision and speed are the order of the day.

Let's discover together the new features and improvements of the Manufacturing module: TYPE CAM.

1. NEW: NEW NC SIMULATION ™

Toolpath simulation enables users to quickly visualize the expected result on the machine, under normal and operator-defined conditions, even before the part is machined. NC Simulation therefore enables users to validate the toolpath generation strategies applied, the choice of tools selected, and the depths according to the selected geometries.

The digital result must faithfully represent the machined reality. In this way, the customer can reconsider his choices in the light of unmachined areas, for example in the case of tools which are too large, or which do not give sufficient relief, etc. This step is crucial before starting machining on the machine. It's an invaluable function for saving time and material.

For this new V15 version, a completely new display technology has been developed and implemented. The result is quite simply breathtaking: the new simulation reconciles display speed and geometry accuracy, while offering dynamic interaction between the user and all available options. This technology relies almost entirely on the performance of the PC graphics card, but also on its optimization. During simulation, or when the focus is on the simulation window, the full resources of the graphics card are used for fast, efficient pixel display. Conversely, when no action is being taken, or when the focus is no longer on the simulation window, the Graphic Processor Unit will not be used at all.

Numerous in-house tests have shown that all graphics cards released after 2016 are compatible with this new display technology. Older cards will need to be upgraded by your IT technician.

Please consult the recommendations on the most compatible hardware for the best user experience, available in this document and online at https://type-edit.com/ .

The NC Simulation has been completely redesigned in its user interface, and its performance is extraordinary. In this simulation, you'll be able to:

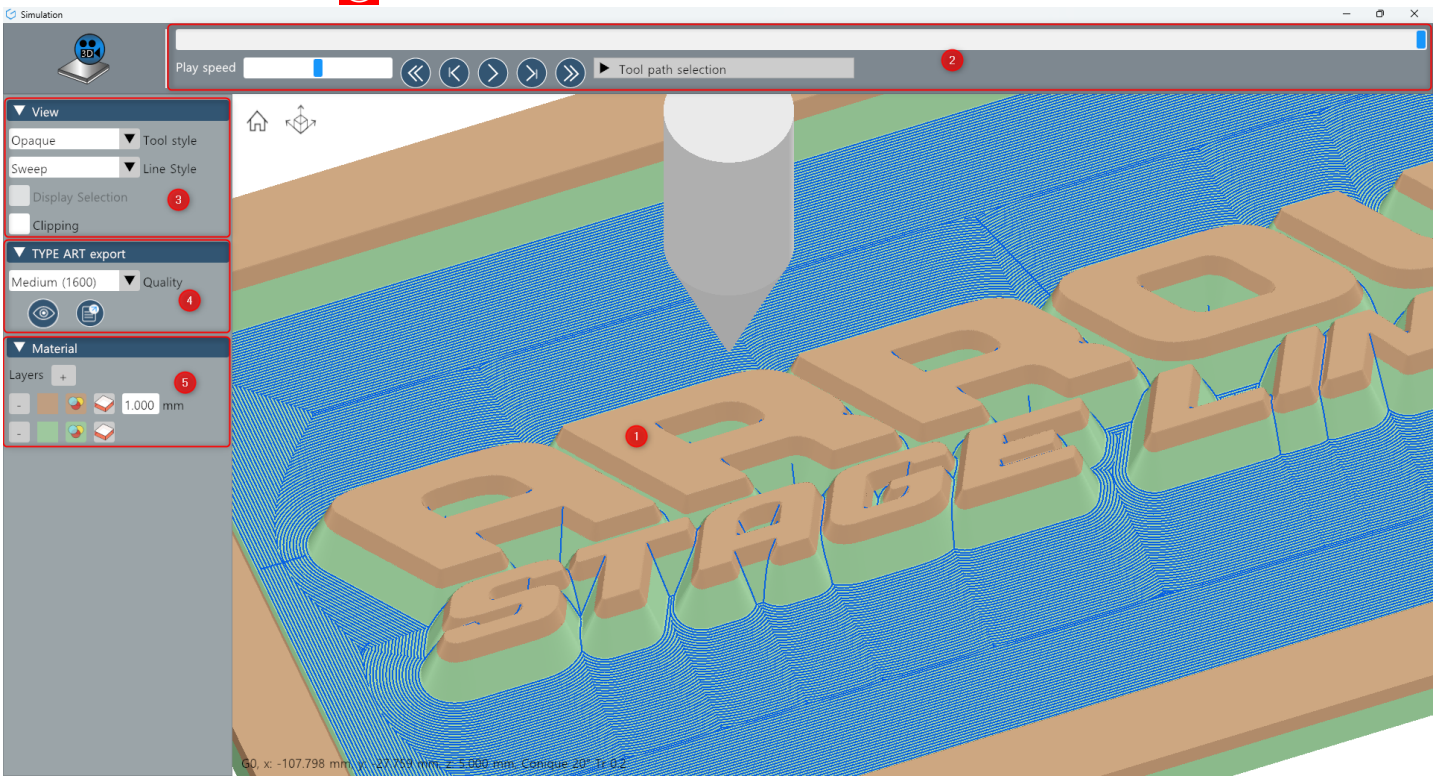
- **Work dynamically on rendering:**
  - Zoom, rotate, move/drag,
  - Simulate with slow, manual/removable or fast speeds,
  - Show or hide tool or tool path.
- Access and customize parameters:
  - Simulation resolution according to graphics card power,
  - 3D TYPE ART mesh export resolution,
  - Z-slicing depth.
- **Define materials either by:**
  - Their color,
  - A material image such as wood, various metals or even a background layer.

As with other simulations, you must first select one or more toolpaths from the list of generated toolpaths, and click on the dedicated 3D Simulation icon: 
A completely independent window is then displayed, showing the final simulation result for the selected toolpaths. This window can then be moved, resized, etc. Here are more details on all the possibilities offered.

A. INTERFACE

The new simulation interface can be divided into 5 zones:

- View window ①,
- The various controls ②,
- The display ③,
- Export in entities 3D TYPE ART ④
- The materials ⑤.



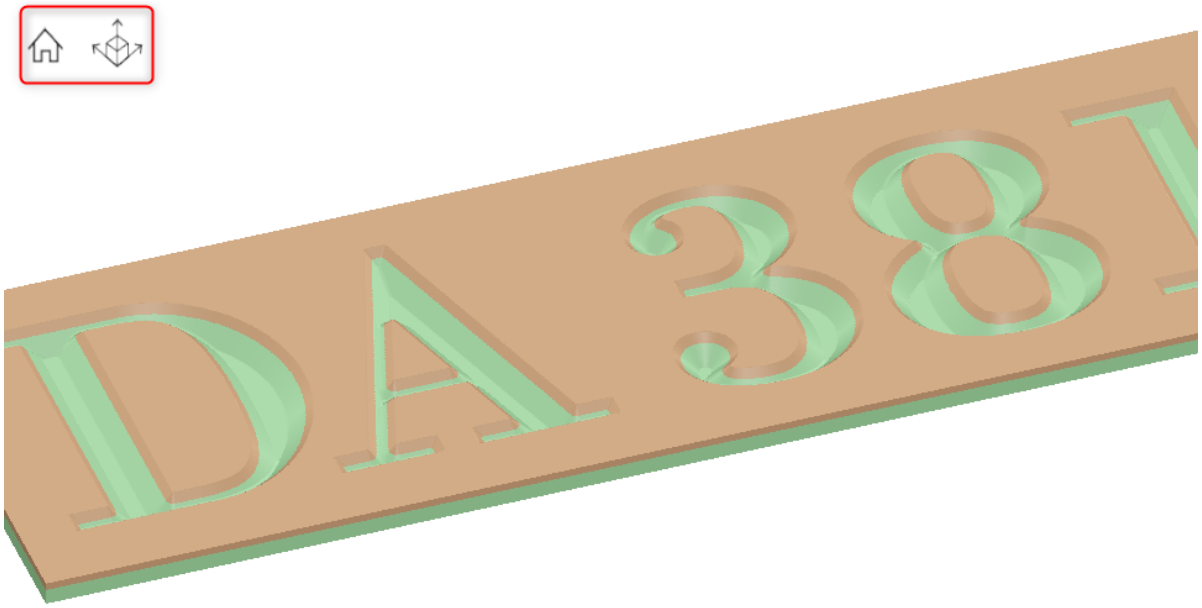
✓ **ZONE display window** ①

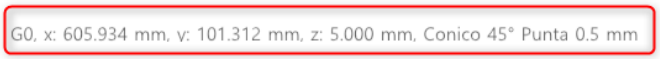
This viewing area is the main window. It allows zooming, rotating and dragging. The result is perfectly executed in real time, with no need for recalculation. Likewise, if the user modifies parameters in the interface, such as changing the color or texture of the material, the simulation is updated in real time, making it extremely ergonomic and comfortable to use.

To ***"Zoom"***, simply hold down the right mouse button and move the mouse up or down. You can also use the scroll wheel to scroll the simulation forwards or backwards.

To **"Move"**, simply click and hold the wheel while moving the mouse towards the desired position. Release the wheel when the correct position has been reached.

To ***"Rotate"***, simply hold down the left click and move the mouse to rotate the entire selection.

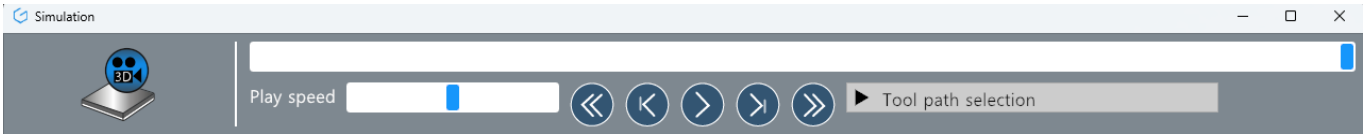




The 2 icons,  , judiciously positioned in the top left-hand corner, return to the max view in 2D (House) and max view in 3D Iso (Reference trihedron). These 2 functions become very useful when the display is operated outside the room to be simulated. This is equivalent to displaying the 2D or 3D Iso view in full screen mode.

Bottom left shows the XYZ coordinates of the current point, the type of trajectory (Rapid G0, Linear G1 or Circular G2/G3 followed by the center and radius of the circular interpolation) and the tool topology defined in the tool database (Cylindrical, Conical, etc.). Depending on the position of the tool in the simulation zone, this value changes.

✓ **Control ZONE ②**

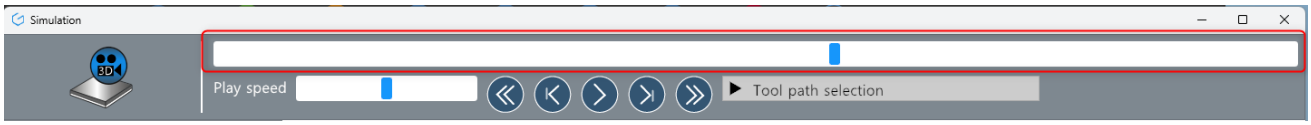


As soon as a user launches an NC Simulation ™, the calculation is performed during page loading and the result is displayed in a new window. If the toolpath to be simulated is very large, the window may appear with a slight delay due to initialization and computation.
Note that it is possible to return to the CAM module; the NC simulation window is totally independent. It is therefore possible to run several simulations, and a new window will open with new properties each time.

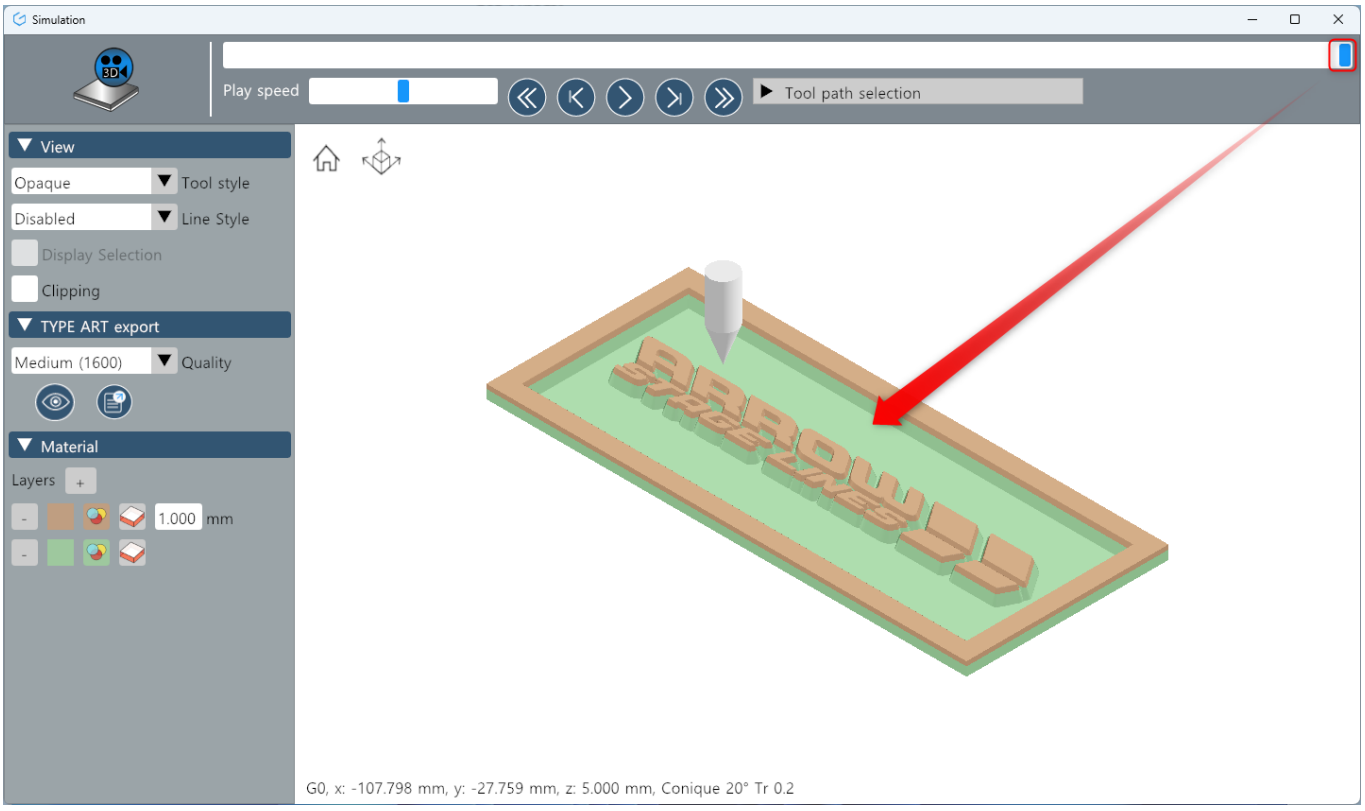
There are 3 different parts to the control panel:

1. Scroll bar,
2. Playback speed bar and controls,
3. simulated toolpath window.

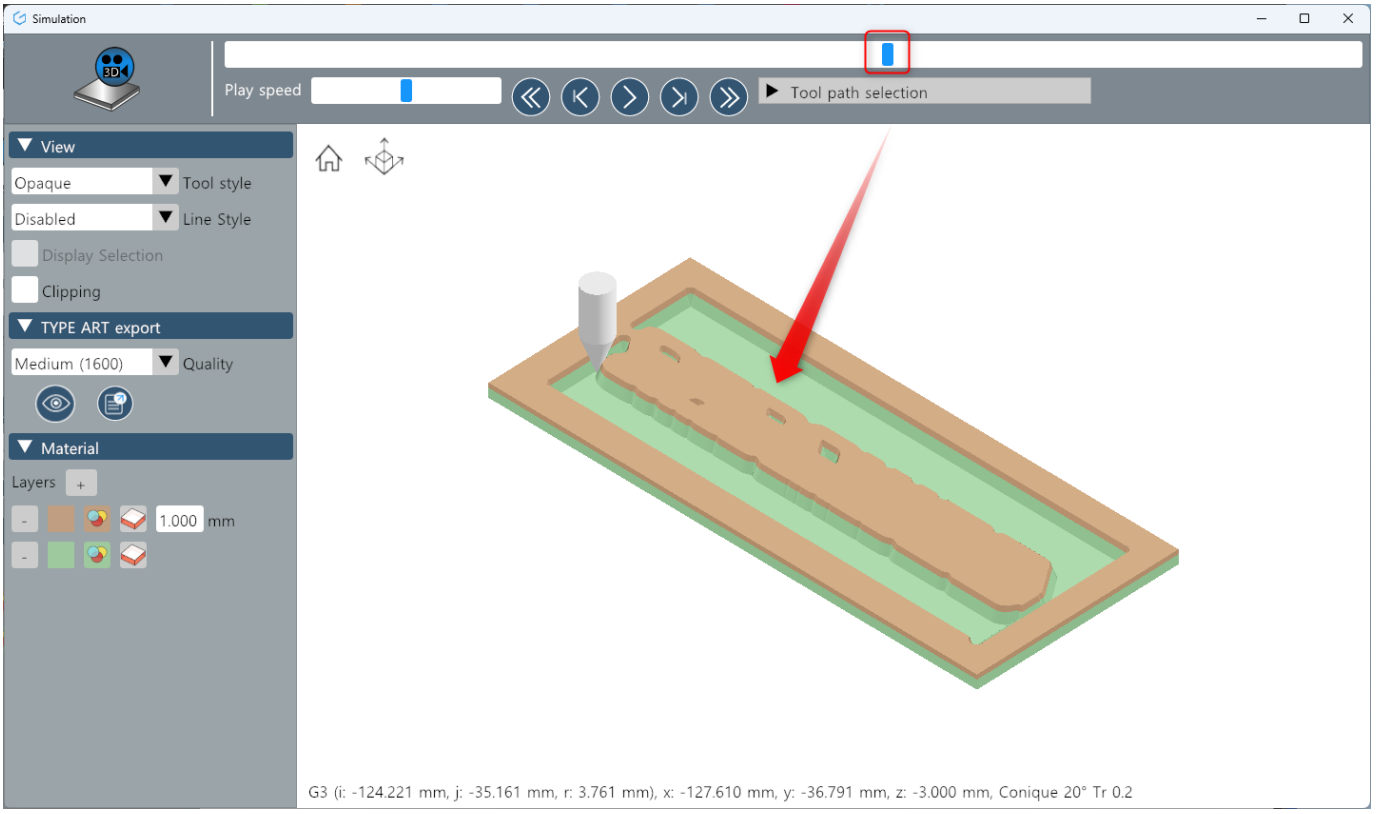
1. The scroll bar



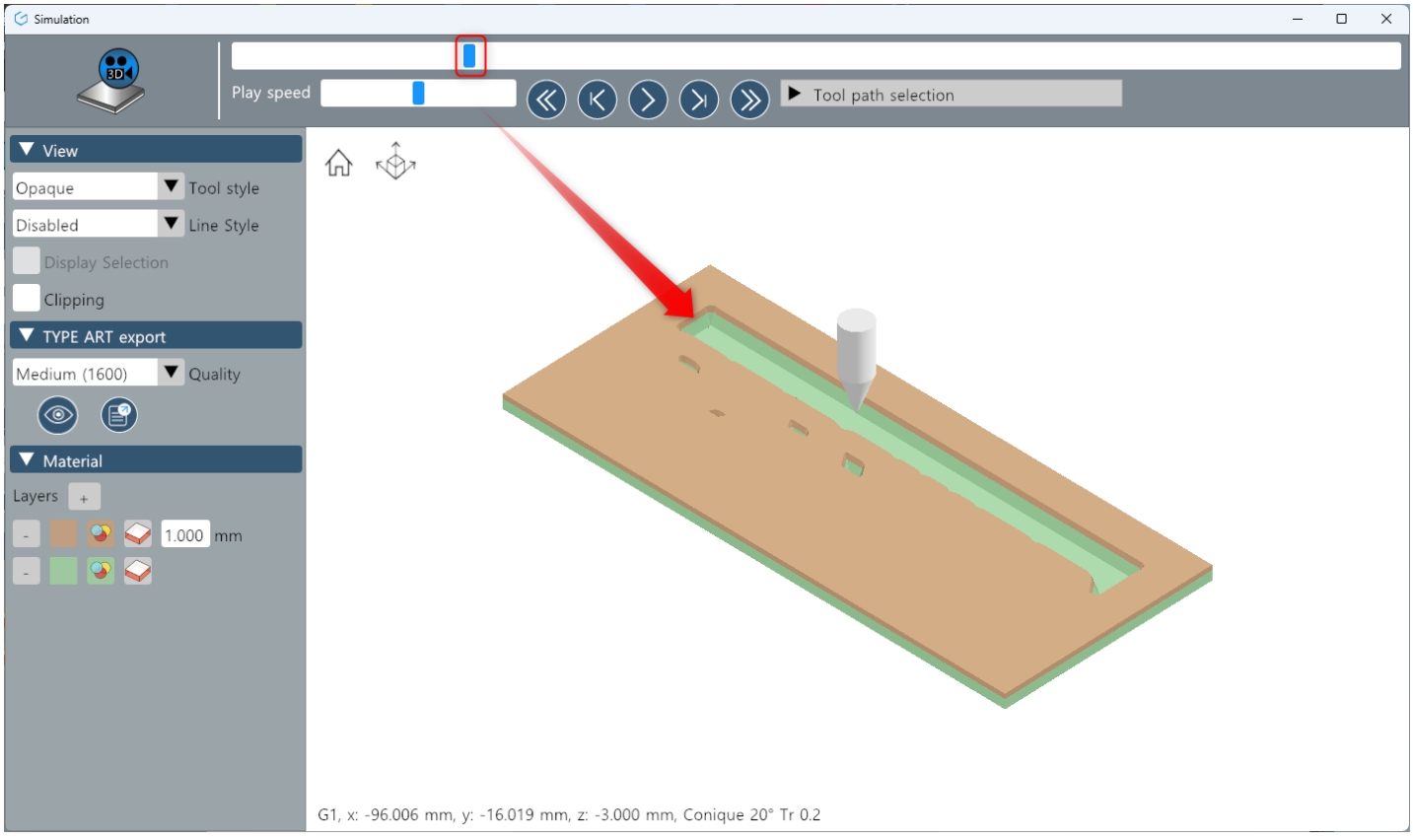
The scroll bar represents the position of the simulation in relation to the selected toolpaths. You can move the cursor left or right with the mouse, and the simulation will update simultaneously.
By default, the cursor is at the end of the simulation when it opens, so you get the final simulation view of all toolpaths sent to simulation from the very beginning, so there's no waiting.



Cursor set at 2/3:



The cursor moves close to the beginning:



So, with this scrolling cursor, you can quickly move to a position on the route and see the result instantly.

2. Play speed bar and controls

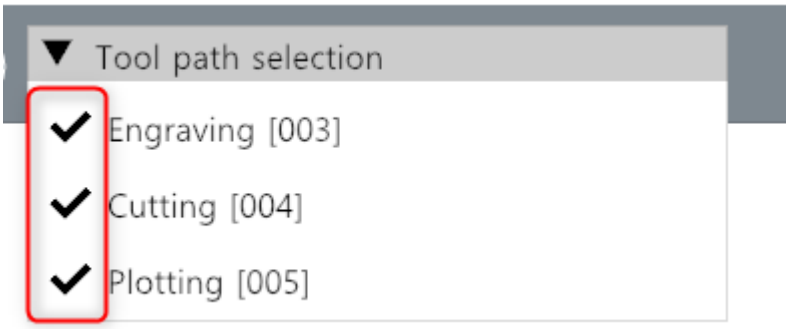
- **The cursor of the play speed** bar is only considered when the user wants to "scroll" through the machining simulation with the « Play command »: . As its name suggests, this cursor will simulate slow or fast. With the other commands, there is no action from the scroll speed slide.

- ***« Step by step »*** mode: to simulate each trajectory step by step, forwards and backwards, press or . This option is very useful for controlling tool movements, particularly during the diving phase.

- Go to ***« Start or End »*** of machining with the commands: and . These 2 commands position the launch bar cursor at the start or end of machining.

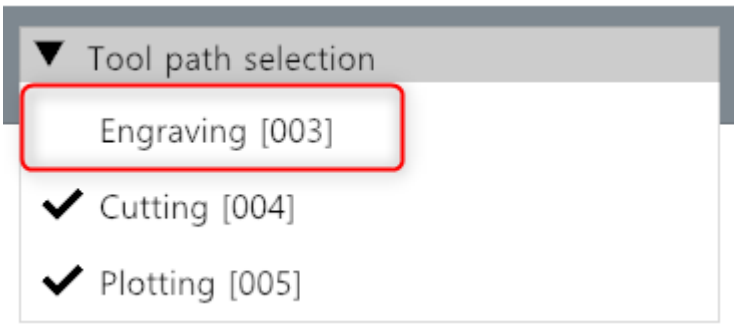
3. Toolpaths to simulate window

When selecting a list of toolpaths to send to simulation, the list will be present and by default ticked to simulate toolpaths. Click on the arrow ▼ to see the tool paths.

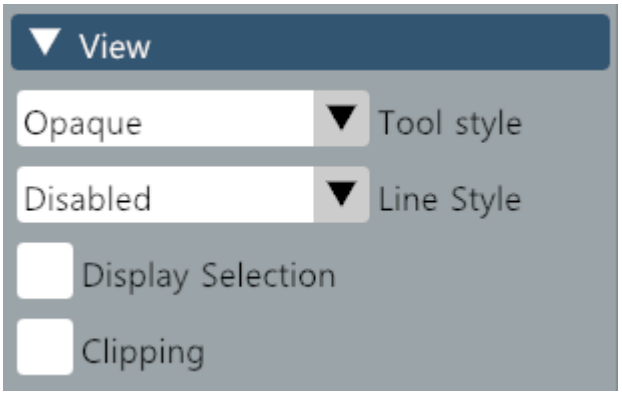


To deactivate the simulation of a route, simply uncheck the box in front of the route name. In the example below, engraving will not be simulated.

Note: as soon as a toolpath is checked or unchecked, the display is updated automatically and very quickly.



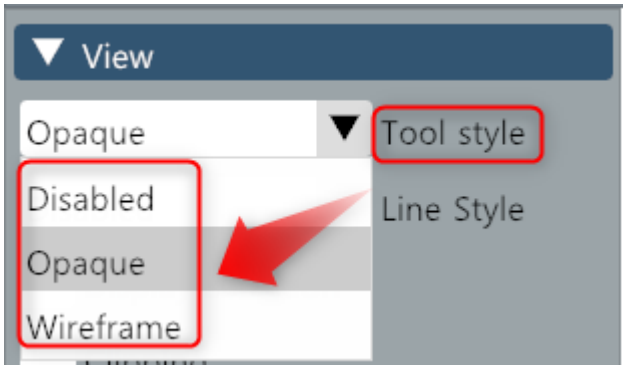
✓ **ZONE display** ③



In this area, there are 4 fields to help visualize elements such as tools, trajectory, slicing or theoretical.

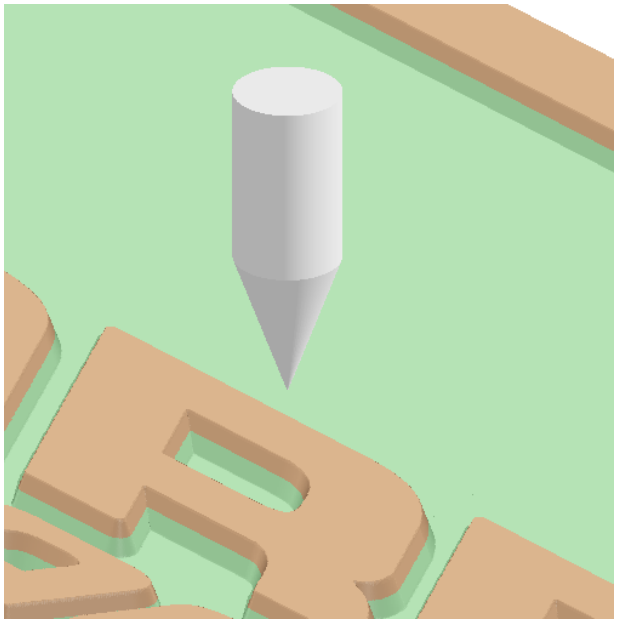
1.Tool style

Use the black arrow on the right to unfold the tool's display options:

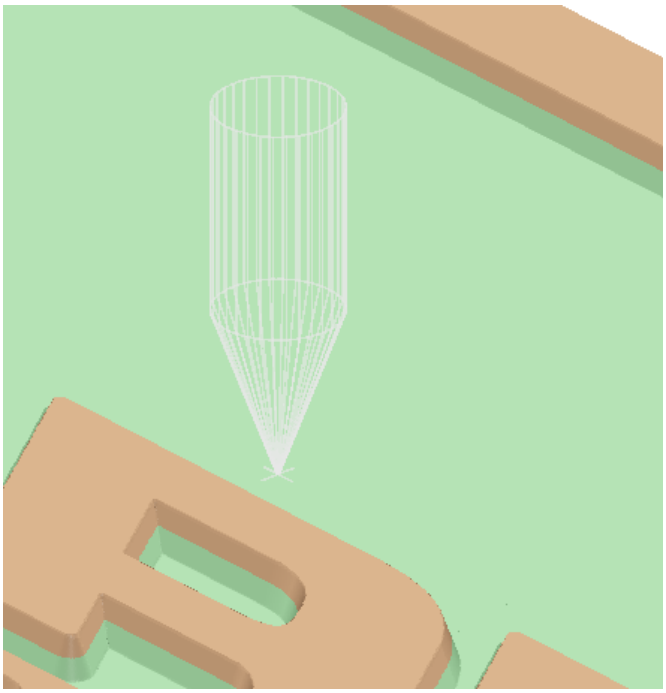


✓ ***Disabled:*** the tool is not displayed during simulation.

✓ ***Opaque:*** the tool is represented with a gray fill. The purpose of this display is to show the tool's dimensions in relation to the part.

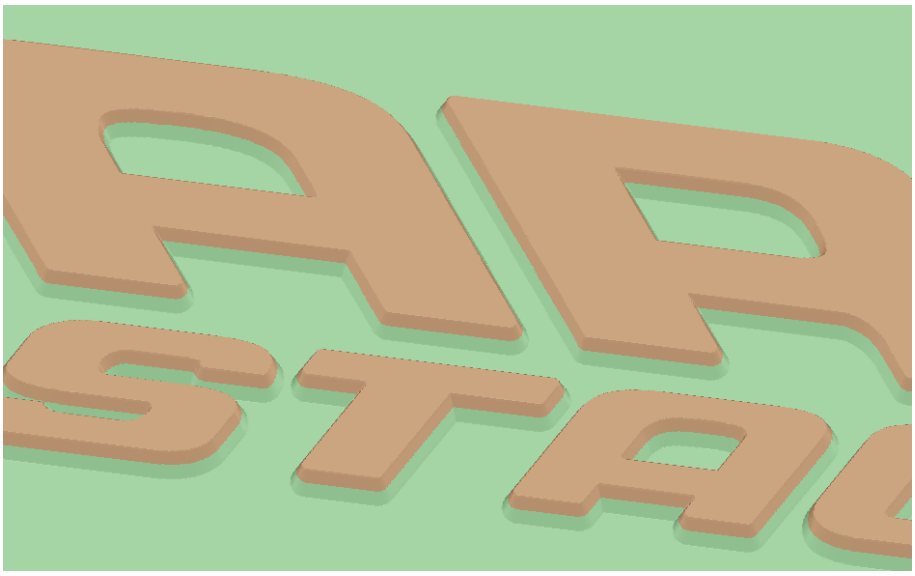


✓ **Wireframe:** the tool is represented in wire form. The advantage of this display is that you can see the material "behind or through" the tool.

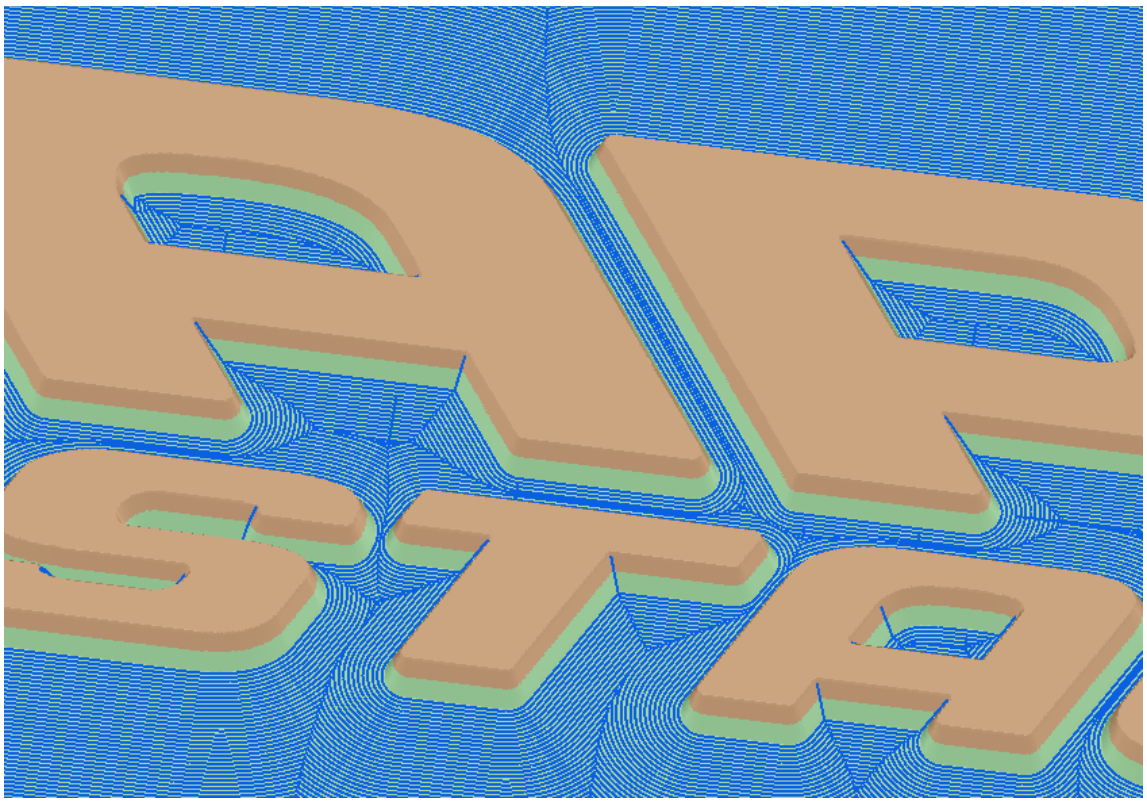


2. Line style

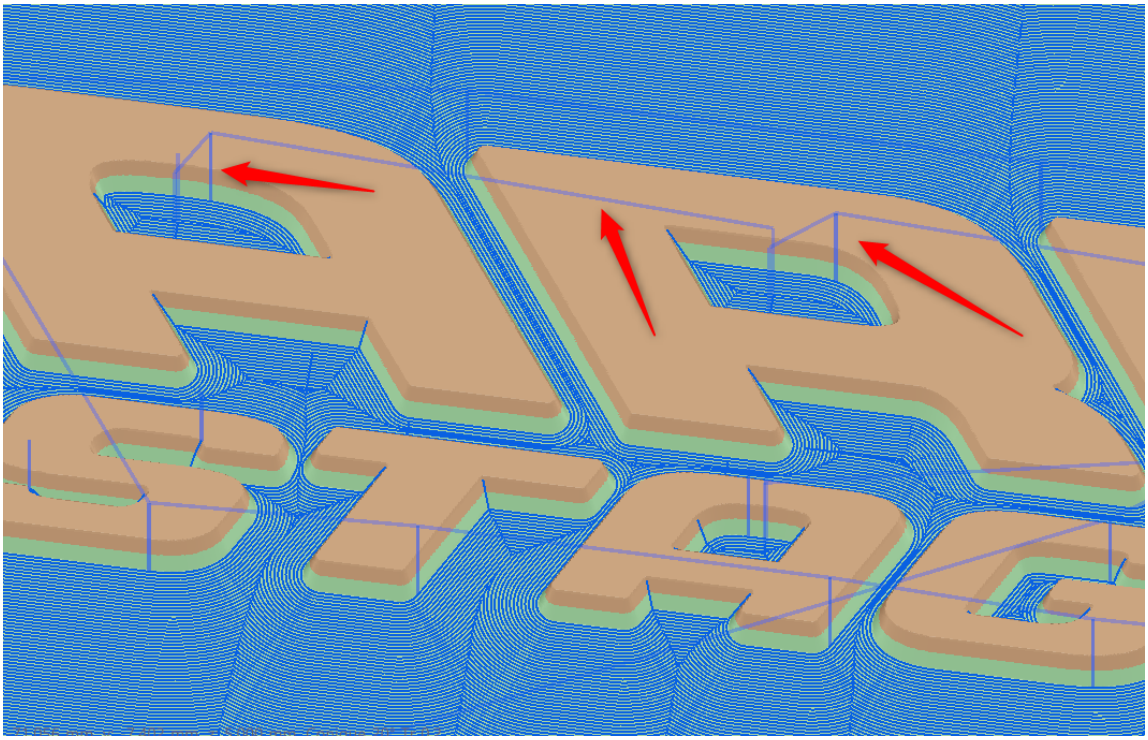
✓ **Disabled:** the tool center path is not displayed during simulation, only the result. This option is useful if you don't want to "clutter" or overload the display.



- ✓ **Sweep:** the tool center path in the material is shown in blue during simulation but does not include movements outside the material. This option is useful for visualizing only the trajectories in the material.



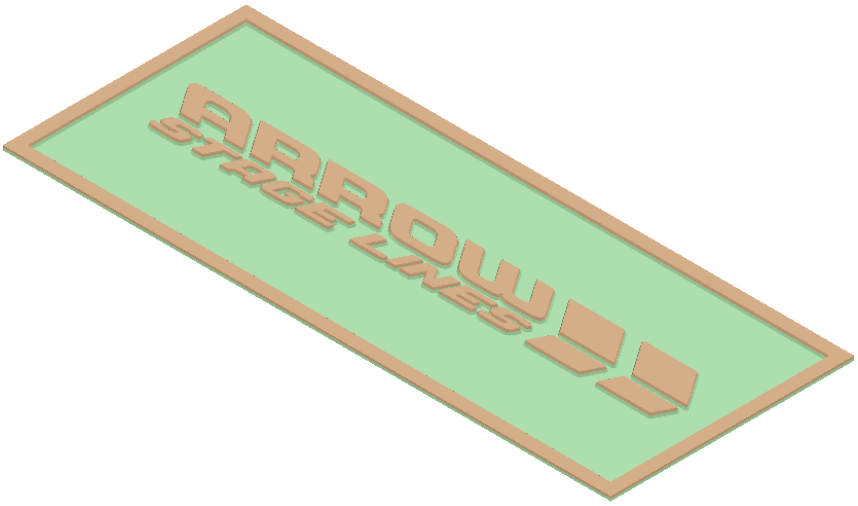
- ✓ **Full:** the tool center path in and out of the material (in light blue) is shown during simulation. All tools' movements are represented.

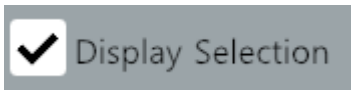


3. Display selection

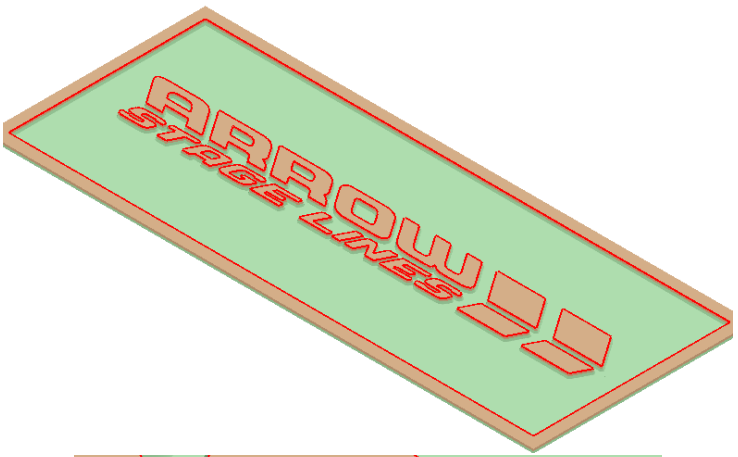
To use this option, you must first select the theoretical contours. If no selection has been made, the option will remain "grayed out" and therefore inaccessible.

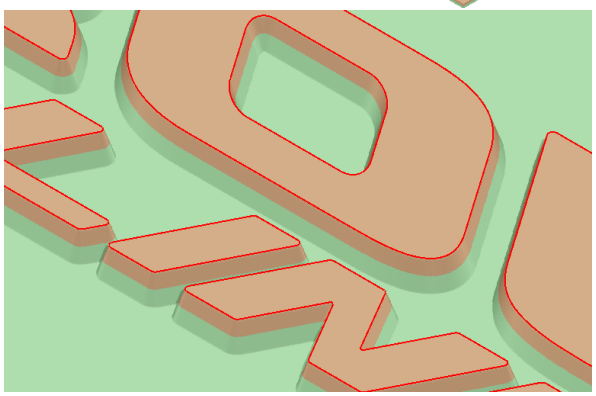
The theoretical contours used to calculate toolpaths are not displayed, so the simulation result is clean.



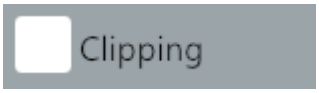


By checking the box, the theoretical contours used to calculate the toolpath are displayed. This makes it much easier to check that the trajectory is correct.

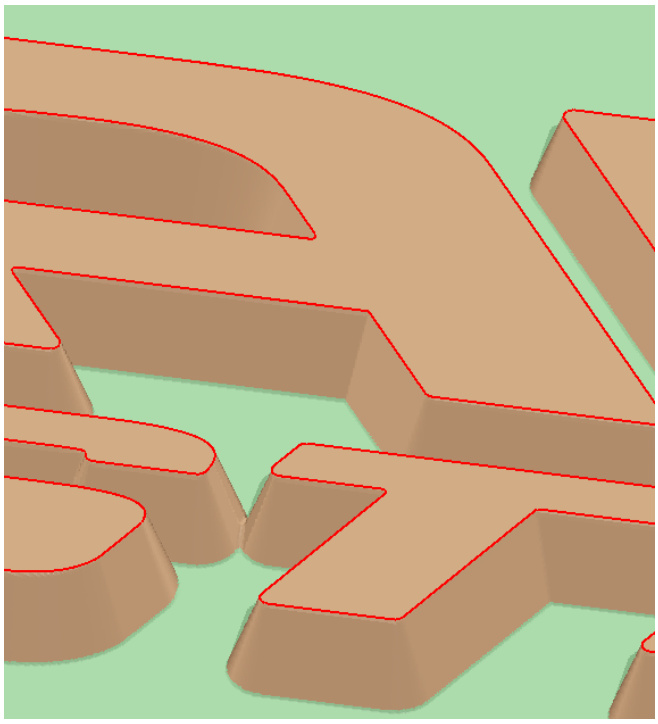




1. Clipping in Z

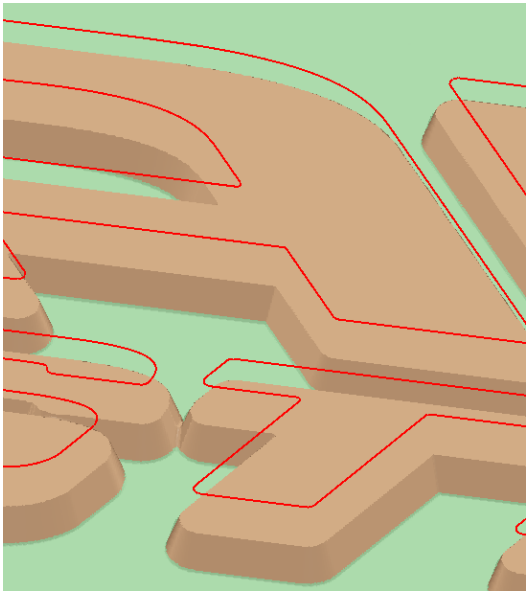


The Z-clipping option cuts the simulation result in depth. In this way, certain details are revealed along with the Z. Result without Z-clipping:

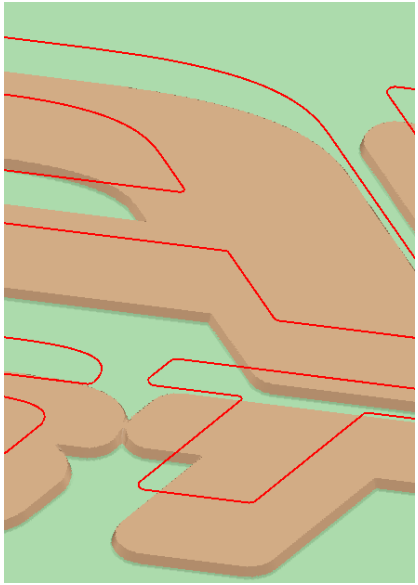


By activating the option, a depth field appears. Use the mouse to move the blue cursor from left to right to cut to the desired Z depth.

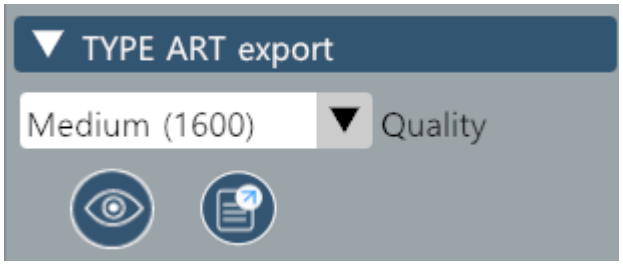
-1.5 mm



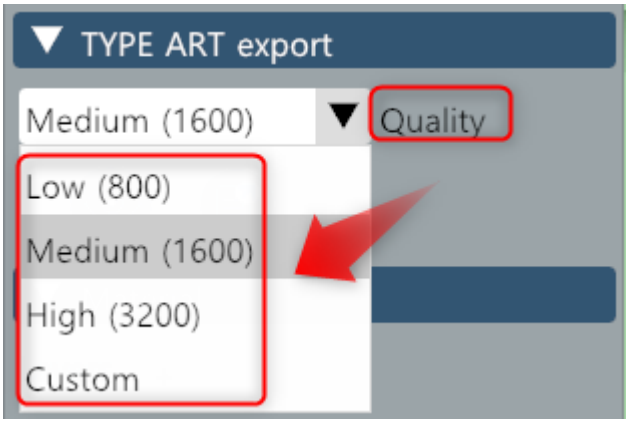
-2.5 mm



✓ **3D TYPE ART export area** ④



In 3D TYPE ART construction, it's sometimes very difficult to design 3D models with the tools available, such as corner dashes or slopes with a very precise angle and, above all, "clean lines". This is where exporting the simulation to 3D TYPE ART comes in. In this case, the result of the simulation is used to transform it into a 3D model. It's a very practical approach that solves many construction problems.
To transform a simulation into a 3D model, you can select from 4 resolution quality options: Low, Medium, High and Custom. This quality is associated with numbers representing the number of points on the most important X or Y dimension.



Choose a resolution then click on the following icon:  . The simulation display changes to a ***"blue gradient"*** regardless of the material/color chosen. This is 3D rendering - TYPE ART.

➢ ***In Low Quality at 800***: parts of the 3D are clearly pixelated.

- ***Medium quality at 1600***: smaller pixelation, smoother pixels.

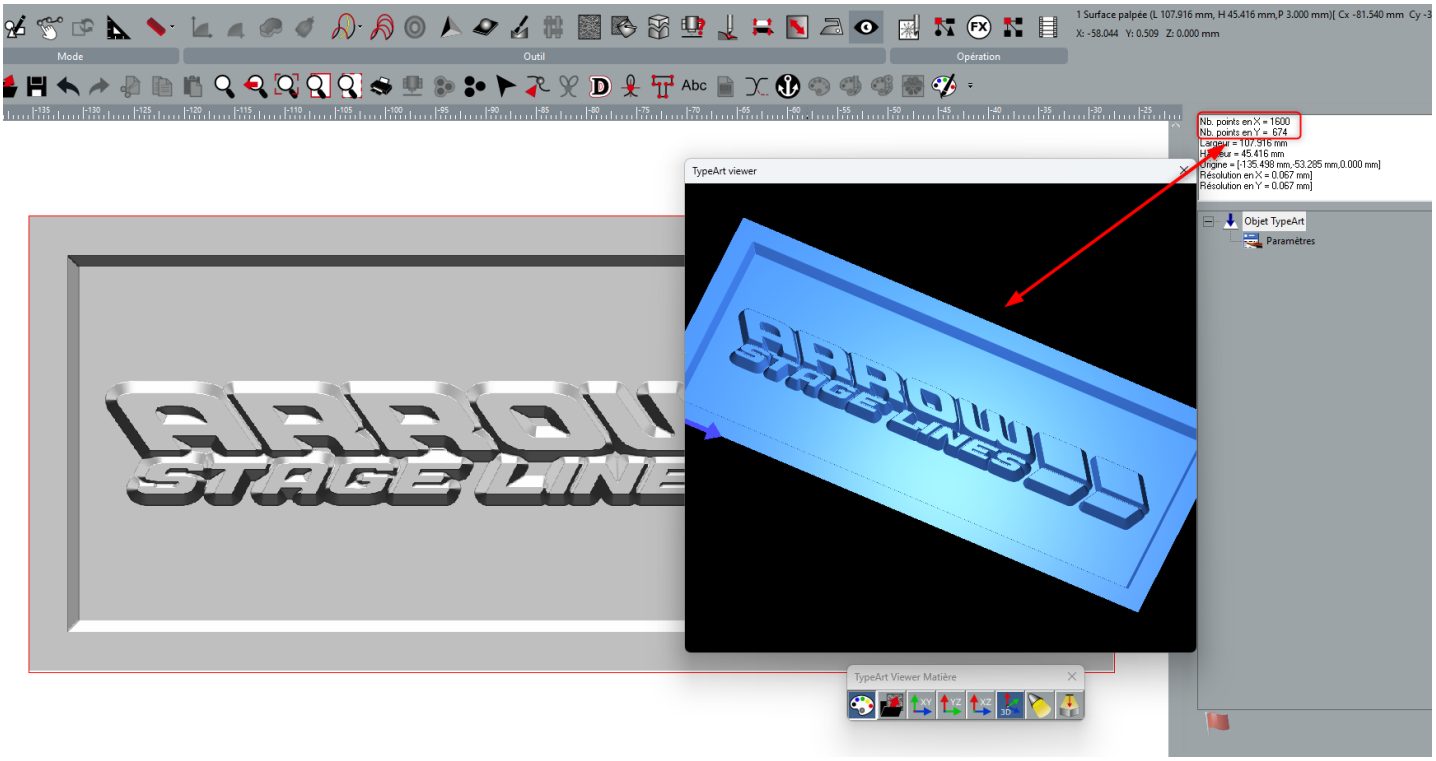
- ***In high quality / above 3200***: the quality is very good.

- ***Customized quality:*** by selecting this quality, an input field appears for entering a resolution. This resolution cannot exceed the Maximum resolution defined in the ***SIMULATION.INI*** file (see below). By default, the maximum value is 8192 points.

Once you have selected the conversion quality, click on  . A window appears:

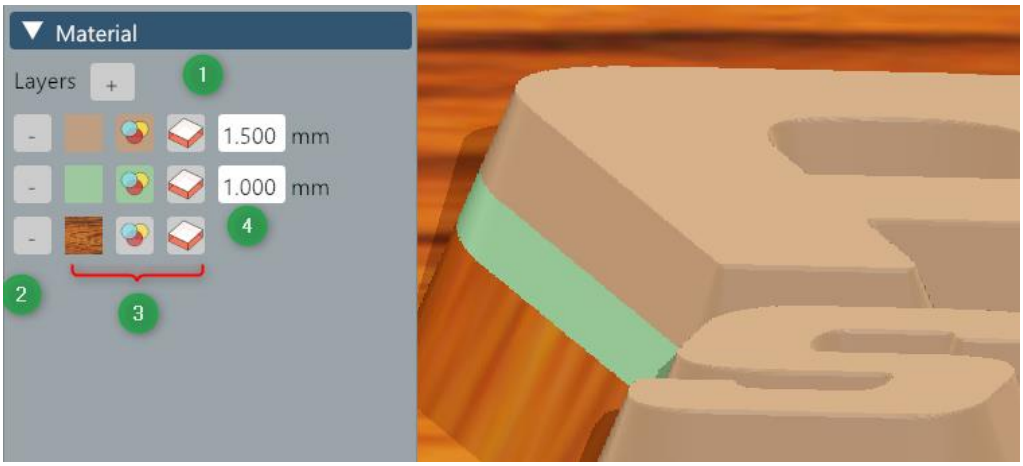
Approve. The simulation window closes, and a new 3D TYPE ART element is created in the current plane.

In the TYPE ART 3D model, the resolution has been adopted over the longest length.



✓ ***ZONE of materials*** ⑤

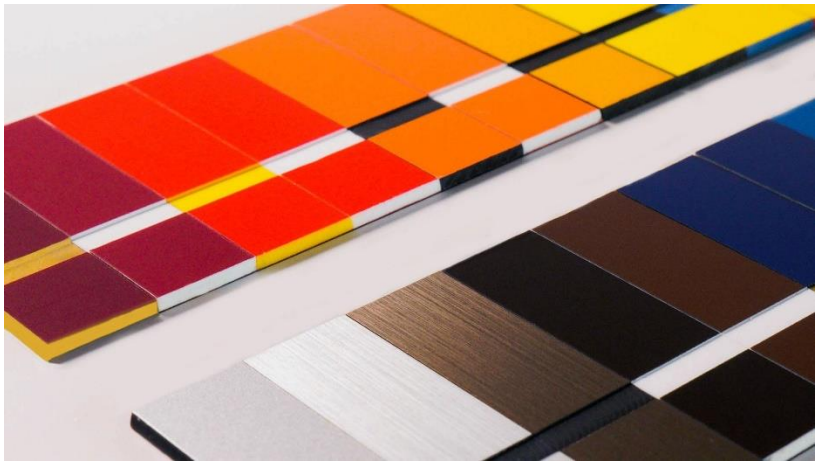
The last zone concerns the materials (color or image used as a veneer) that can be used in the simulation. All modifications (change of color, material or depth. Adding or deleting slices) will be considered instantly in the main window, so the new simulation is totally dynamic.



The material interface can be divided into 4 zones:

1. Adding material in the form of layers ①,
2. Deleting a material or layer ②,
3. The choice of material: color or image ③,
4. Depth/thickness for each material ④.

In this example, 3 slices have been defined: 2 with colors and the last with a wood-like material.
The first, 1.5 mm thick, has the color . And from -1 mm to -2 mm, the color is defined.
Between -2.5 mm and the end of machining, a wood-type material has been defined.
With this approach, and with layers of material in several colors, it's easy to simulate Gravotech consumables close to reality.



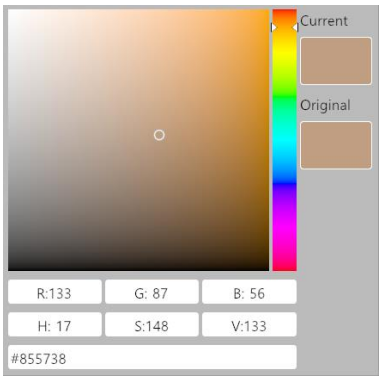
1. ***Adding & deleting material slices*** ① & ②

Each time you click on ***"+"***, a new slice of material is created, with a nominal value of 1mm and a color.
If the ***"-"*** is pressed, the slice is removed from the list and the display is updated.

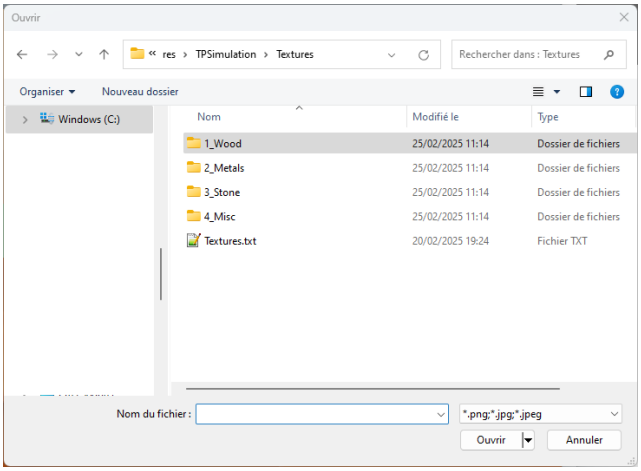
2. Choice of material: color or image ③

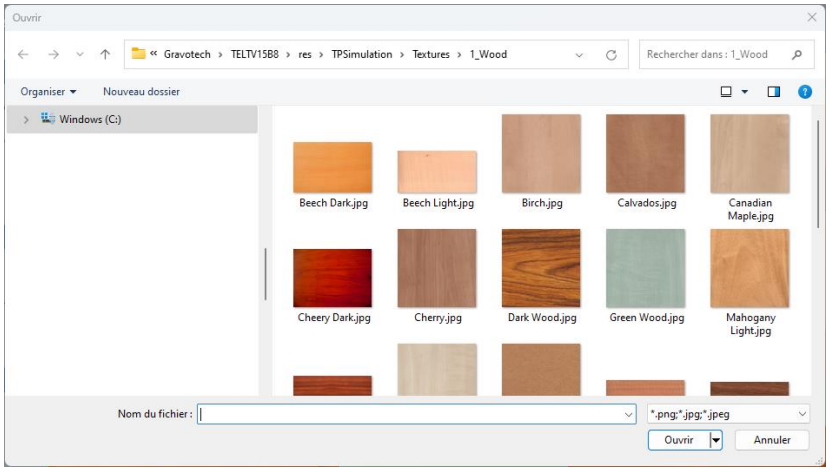
The first column shows the color or image currently being applied***.***

The second column  opens the color chart to select a color. It's a classic color chart. As soon as you point to a color, the main window of the relevant slice is updated. It's dynamic. To exit the color chart, simply click outside it.



The third column  opens the material selection. By default, in the installation directory there are several directories (Wood, Metal, Stones and Misc) containing several images. Users can use their own images in (PNG, JPG or JPEG) format by copying them into these directories or creating new ones. Preferably, images should be "square" and of sufficient resolution to avoid pixelation.





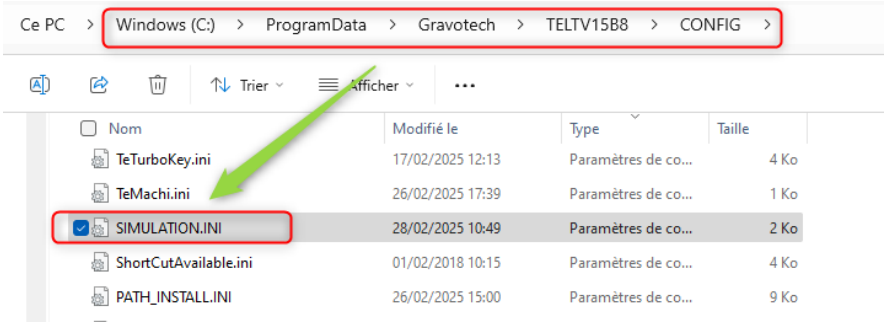
Here are some examples of simulations with different parameters:

NC Simulation

Cutting sample

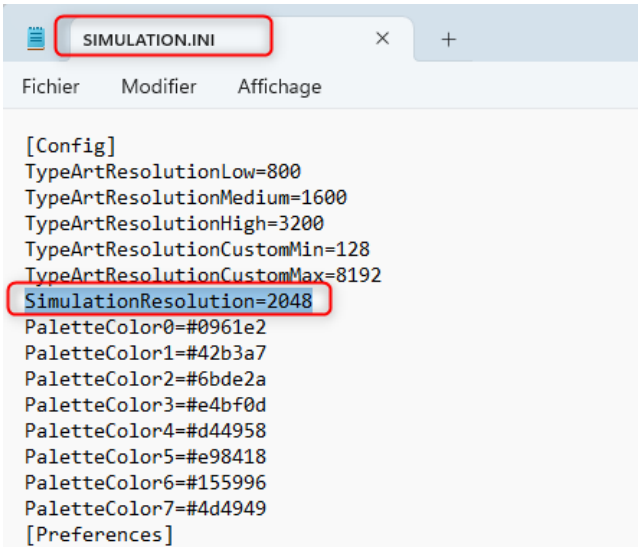
✓ Simulation resolution and 3D export to 3D model - TYPE ART

Simulation resolution can be customized in the ***SIMULATION.INI*** file.
This file is in the installation directory. By default, it is under:
« C:\ProgramData\Gravotech\TELTV15B8\CONFIG ».



In this file, there is a set of parameters that are written via the interface representing the state of each value, and parameters that can be modified manually.

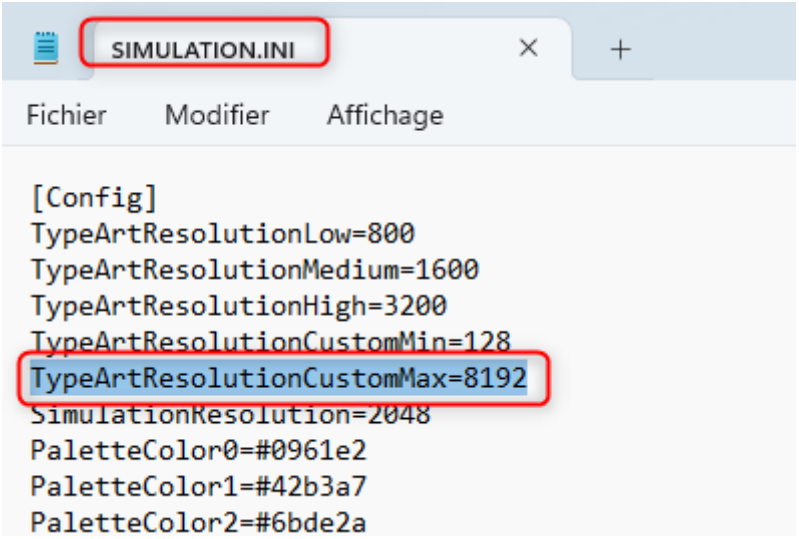
To modify the simulation resolution, change the value of the parameter ***« SimulationResolution »***. This value corresponds to the number of pixels to be displayed in the main window.



WARNING with this parameter, the higher the value, the more accurate the simulation will be, but it will also be slow if your graphics card isn't powerful enough**.**

To change the resolution of the 3D export to TYPE ART, change the value of parameter ***TypeArtResolutionCustomMax ».***

The default maximum value is 8912 points, which corresponds to the maximum number of points of the TYPE ART on the largest X or Y dimension. For example, if the simulation is larger on the width dimension, then the width dimension will have the maximum number of points, giving the resolution (width / maximum number of points) and, depending on the length dimension, the number of points will be calculated according to the resolution found. The same reasoning applies if the simulation is larger in length



2. NEW: CUTTING-CHAMFERING SEQUENCE

V15 introduces a brand-new toolpath consisting of ***Cutting*** and ***Chamfering*** on the edge of contours. The cutting part can be performed with several cylindrical tools only.
The aim is to create a visual effect by highlighting the 3D volume of the curves according to the light.
The result is a subtle aesthetic effect, depending on the material used. It's no longer a classic cut, but a beautiful cut with a chamfer, especially in 3D.

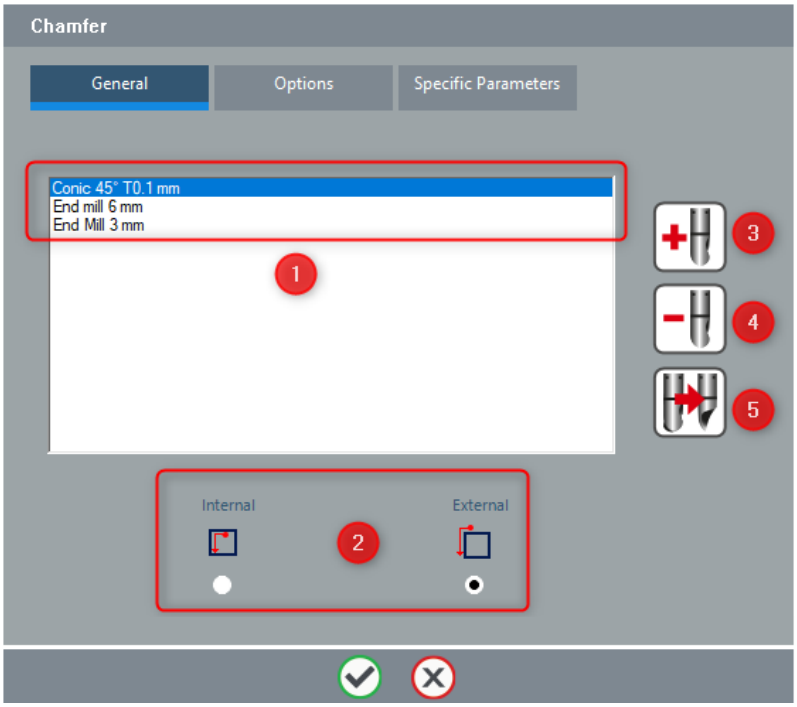
Technically speaking, chamfering consists in creating a small bevel identical to the tool angle, often 45°, on the edges at the front of the cut, over a configurable width and depth.

Chamfering can be performed in 2D or 3D, i.e. with or without the corner upstands.
So, there are 2 levels of finish possible, and the result is far more elegant than a simple straight cut.

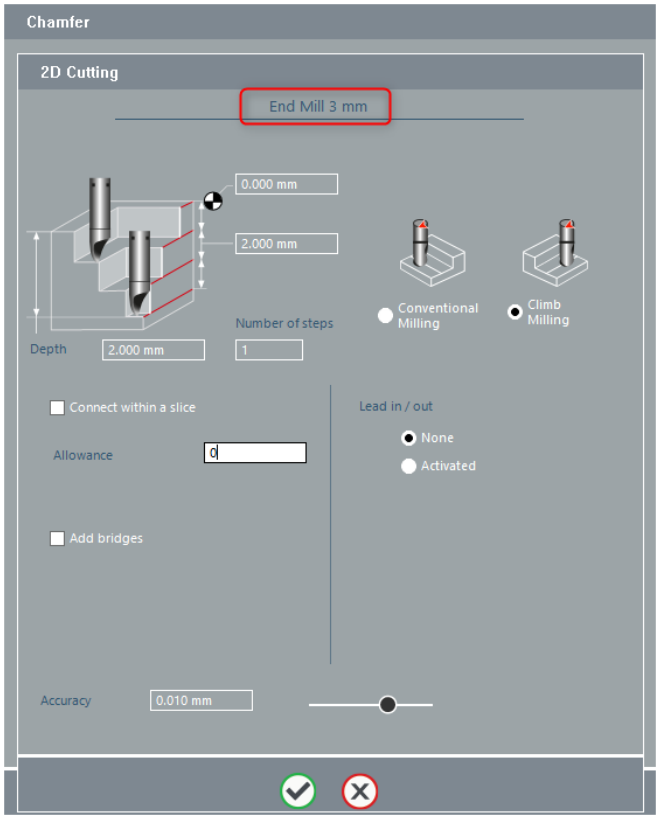
The result below, on the left, represents a classic cut with a straight-edged cylindrical tool, and on the right, the same cut but with a 3D chamfer finish.

The interface of the Cut - Chamfer sequence can be divided into 5 zones:

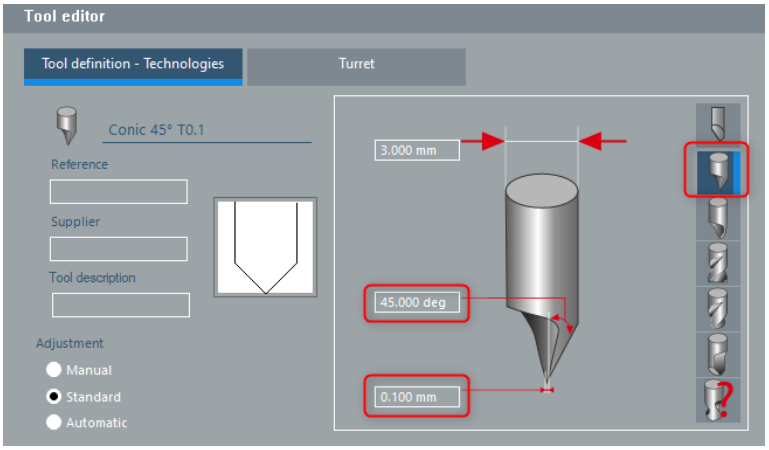
- List of tools used in the sequence ①,
- Choose a cut / External or internal chamfer ②,
- Add a new tool ③ or delete a tool ④
- Edit the path associated with the tool ⑤.



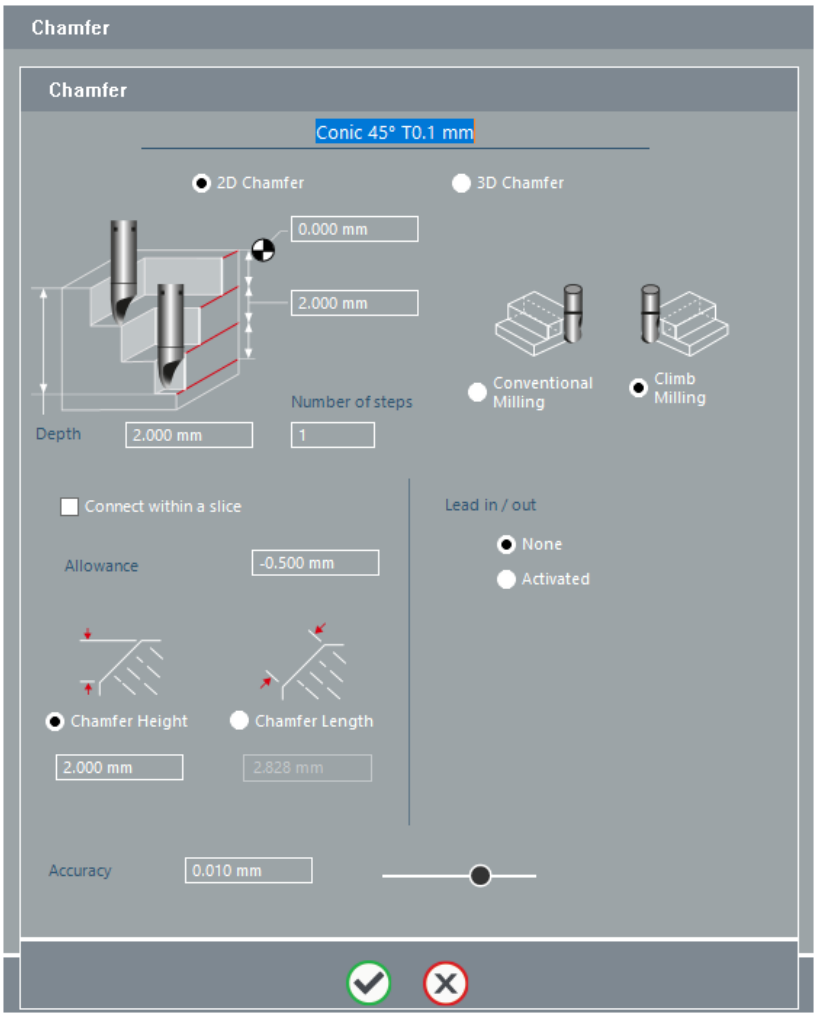
When launching this Cutting - Chamfering Sequence, start with "Add a tool". ③, the toolpath interface appears enter depth, number of passes, tangential In / Out, cutting bridges, etc. Then validate.



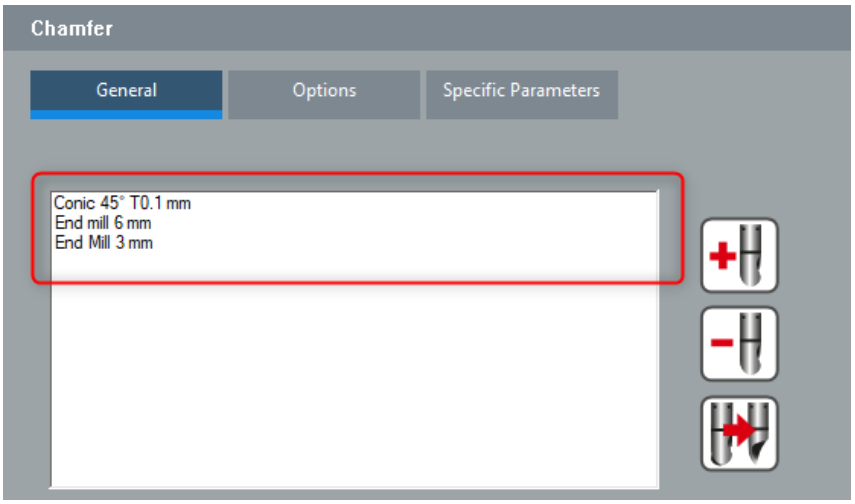
Add and fill in as many cylindrical tools as required for the material to be cut, then add a single conical tool.



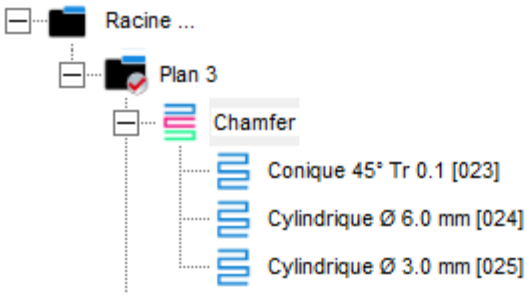
The toolpath is displayed with its parameters: choice of 2D or 3D chamfer (with upstrokes in the corners), definition of chamfer height or width (the depth is automatically recalculated in relation to the tool), type of machining and tangential In/Out, etc.
The "clearance" parameter corresponds to the chamfer allowance in relation to the theoretical contours.



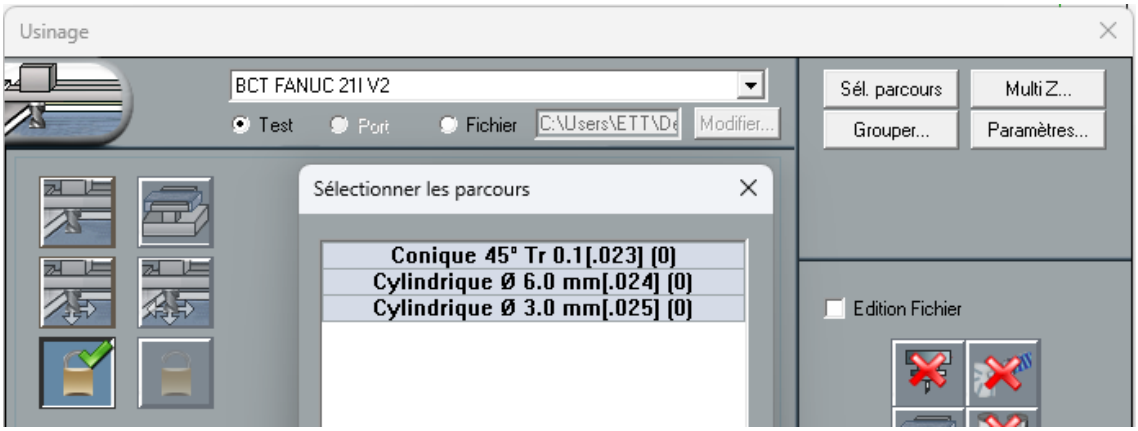
If several cylindrical tools are selected, they will be arranged in order from largest to smallest diameter. Machining will take place in this order.



ATTENTION: the toolpath list looks like this, and it's in this order that machining takes place: chamfer toolpath, then the largest tools to the smallest for cutting. If, depending on the material, this order is not appropriate (e.g. metals), you must manually select the order of tools to be sent for machining (e.g. cylindrical tools, then chamfer).



In pre-processing, the machining order is respected:



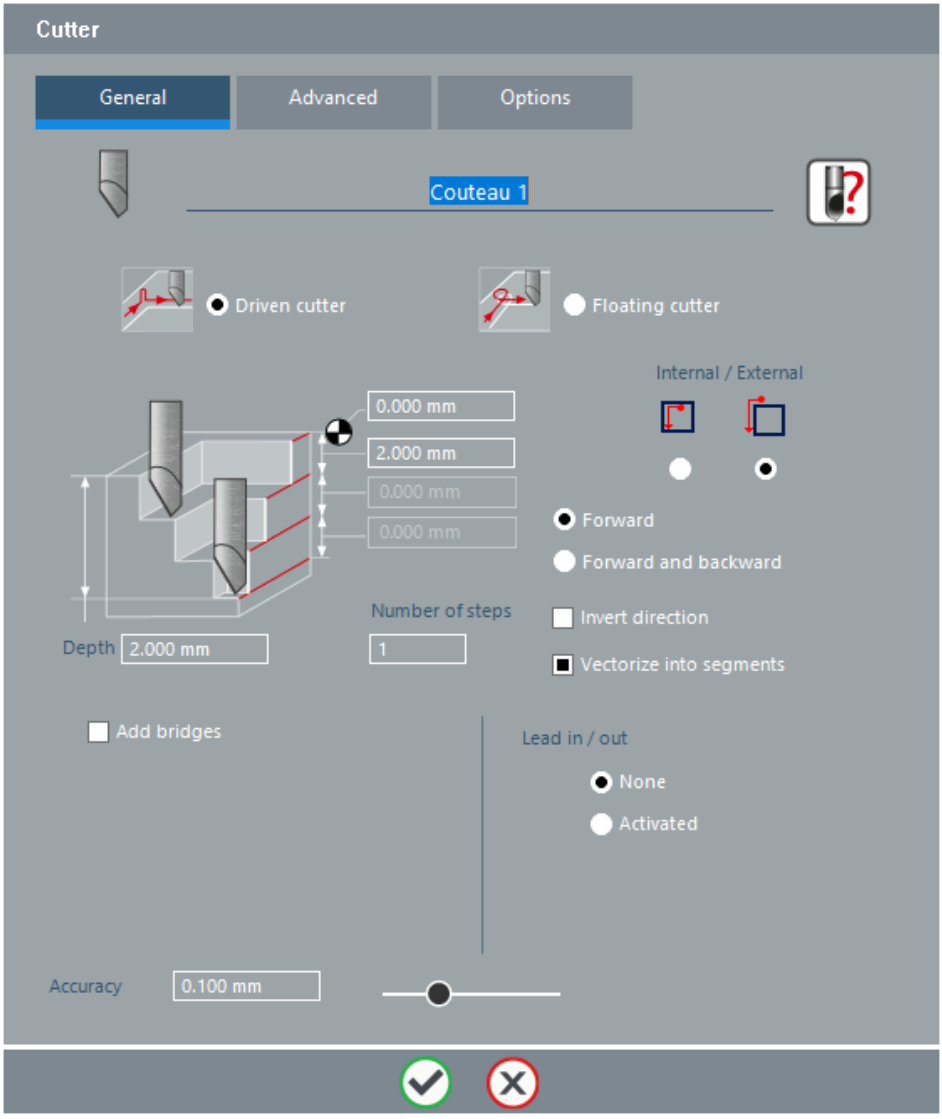
Result of simulating a Cutting - Chamfering sequence, the cutting detail and chamfer on a machined brass part:

3. NEW: CUTTER TOOLPATH

Another new tool path in TYPE EDIT's expansion into packaging die-cutting applications. Whether it's cardboard, foam, rubber, textiles or fabric, but also noble raw materials such as leather or, more simply, vinyl***, knife cutting*** is now ubiquitous.

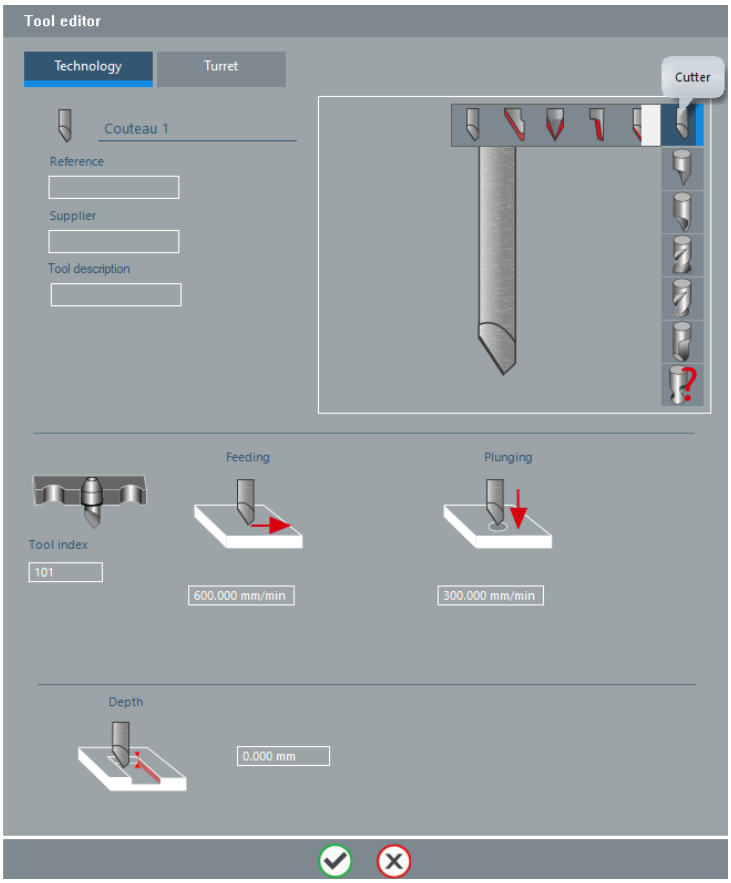
All Print & Cut applications also use Cutter. Blades come in a variety of forms, but the strategy remains similar: to be able to control the rotation of the blade to avoid tool breakage, for clean, economical cutting.

From the creation of new tool shapes to the toolpath itself, as well as post-processing, the developers have deployed all their know-how to create this new toolpath to meet the needs of our customers and partners, and to drive all types of machines.

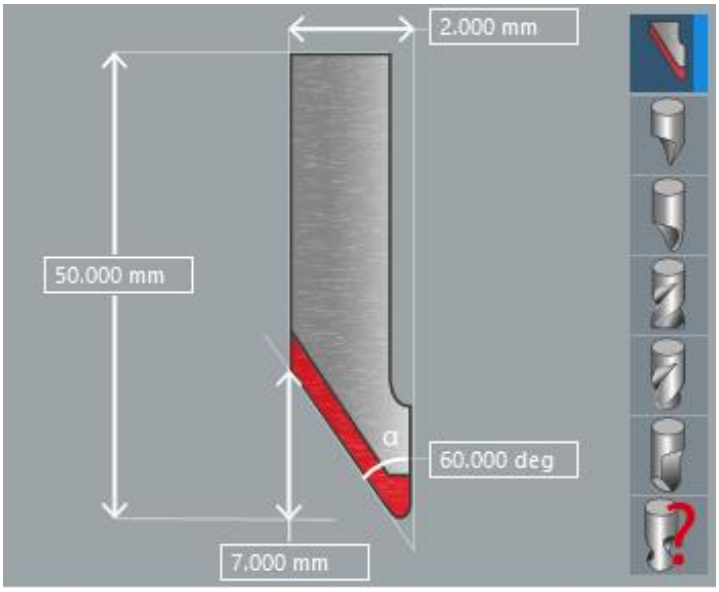


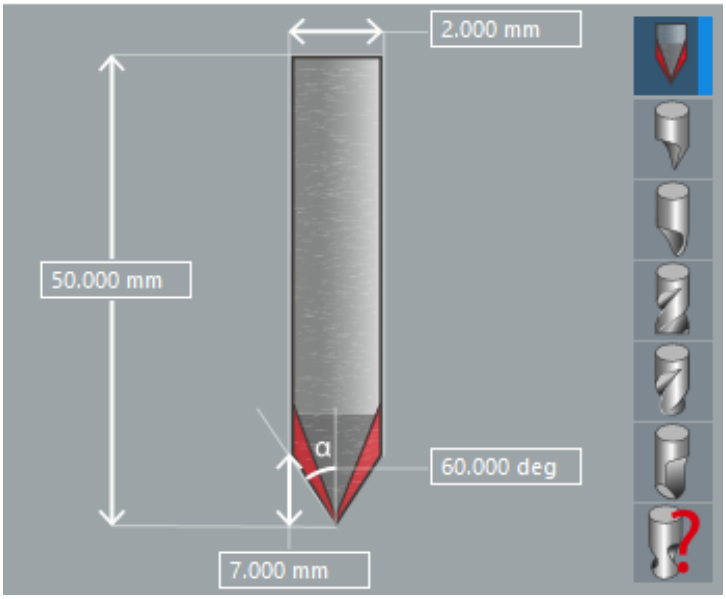
A. DATABASE TOOLS

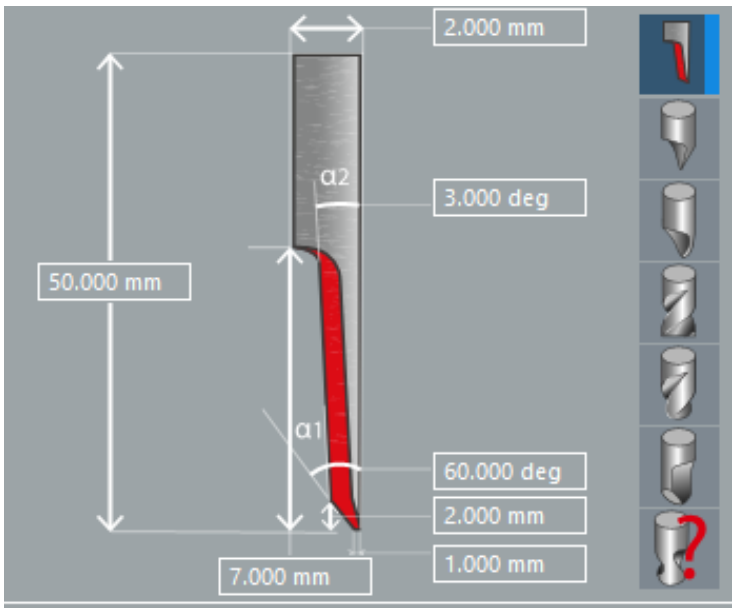
In the tool database, new knife shapes appear in the list. Select the shape and geometry of your knife and the toolpath will adapt the trajectory to this shape.
The parameters are standard: tool number, plunge and feed speeds in the material, and dimensional parameters for each shape.

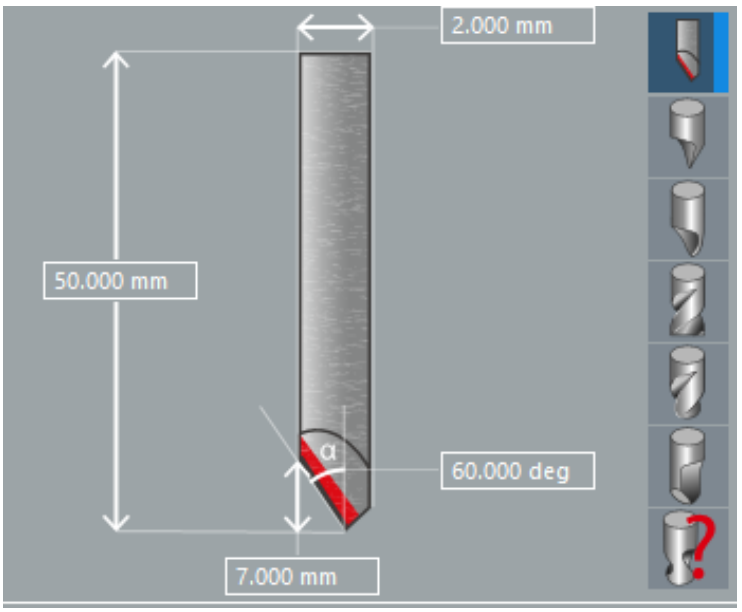


Here are the 4 new possible shapes: you need to enter the angles and dimensions.





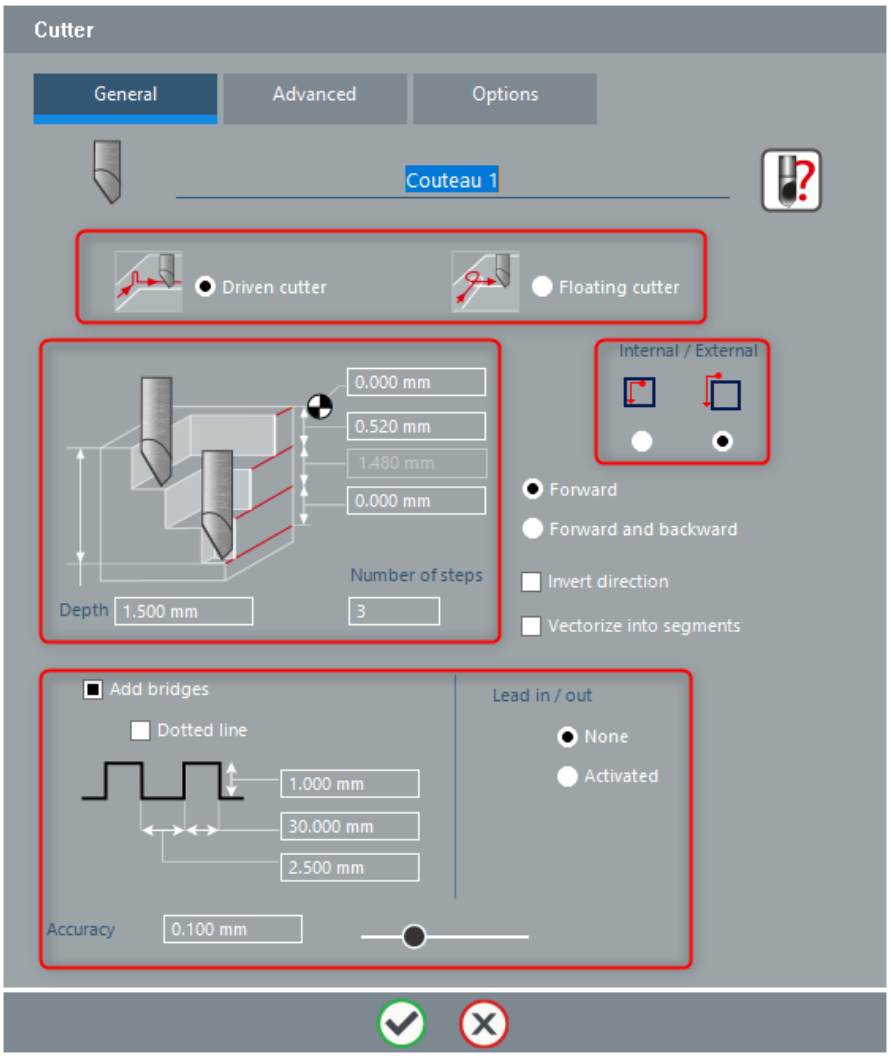

2.000 mm
α2
3.000 deg
50.000 mm
α1
60.000 deg
2.000 mm
1.000 mm
7.000 mm


2.000 mm
50.000 mm
α
60.000 deg
7.000 mm

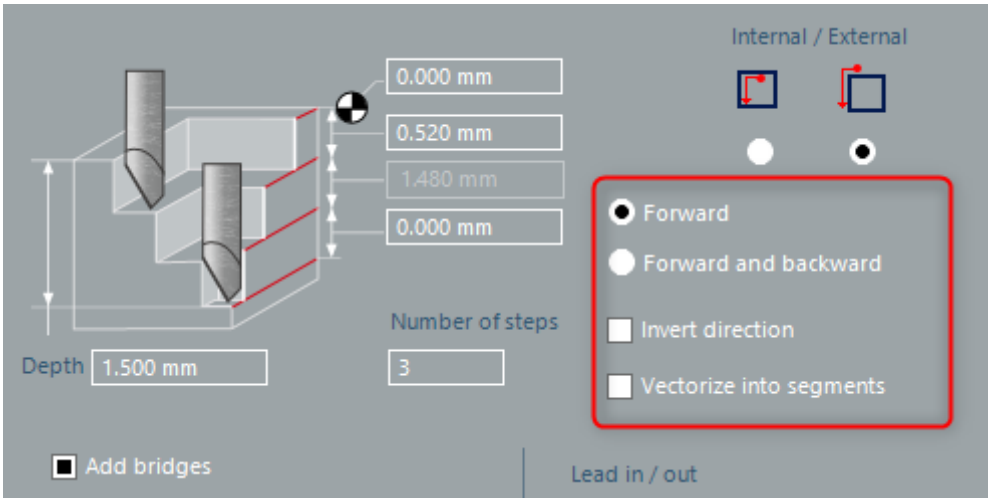
B. INTERFACE GENERAL TABS

The approach to this new tool path is identical to that of Vinyl and the other tool paths. Most of the parameters are already known and will not be explained or detailed in this section. The following is a list of known parameters:

- Choosing a cutter tool,
- The option of a ***"Driven"*** or ***"Floating"*** knife,
- Cutting ***"depth"***, number of passes, pass height and reference zero,
- ***"Internal / External"*** option
- Addition of ***"cutting bridges"*** and associated parameters such as height, length, distance between bridges, dotted bridges, etc.
- Management of ***"Leads in and Out"***: if enabled, an additional tab will appear, allowing you to define their parameters,
- ***"Calculation precision"***, which applies to Beziers curves.

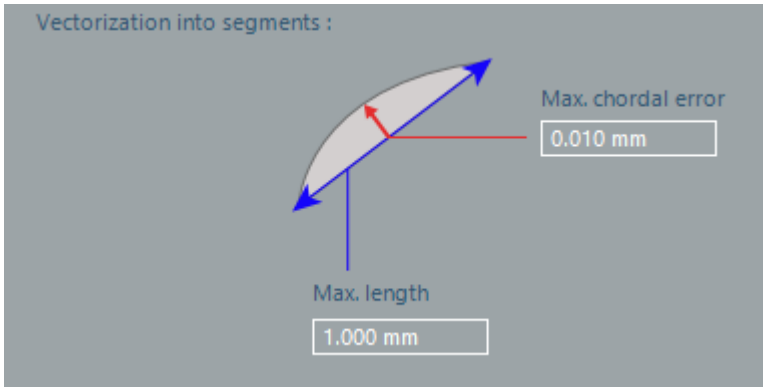


This leaves only 4 new parameters introduced to meet the needs of this application.

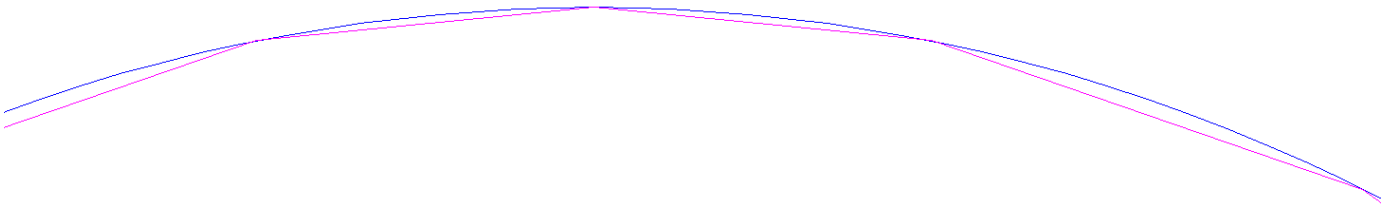


- ***"Forward"*** and ***"Forward and Backward***": used according to the material to be cut, by default the trajectory makes a one-way trip and is sufficient for cutting. However, if required, the knife can go back and forth to optimize cutting.
- ***"Invert direction"*** of contours. The knife normally follows the direction of the contour, but sometimes the direction of the contour does not allow a clean cut due to the structure of the material. With this option, the cutter path cuts in the opposite direction to the contour (green or blue).
- ***"Vectorize into segments":*** some machines still don't handle G2/G3 circular interpolation with cutter tools. To cut a circle, for example, you need to manage the rotation of the blade as it traverses the arc. This option allows you to segment arcs and Beziers curve into segments. In this way, angles will be managed directly by calculation.

The 2 segmentation parameters can be found in the "OPTIONS" tab: cord error and maximum segment length can be set.

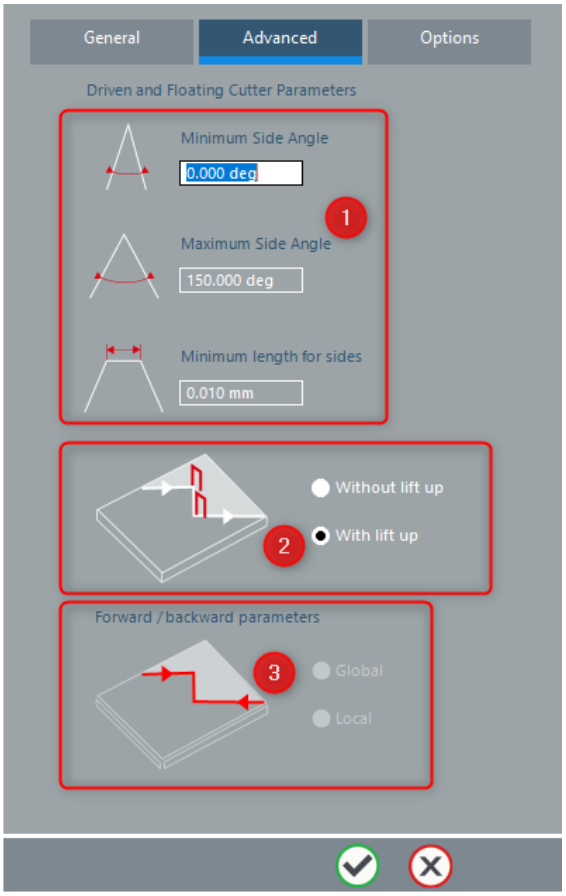


Here's the result of segmentation on an arc: in blue, the theoretical Beziers circle; in magenta, the segmented arc.

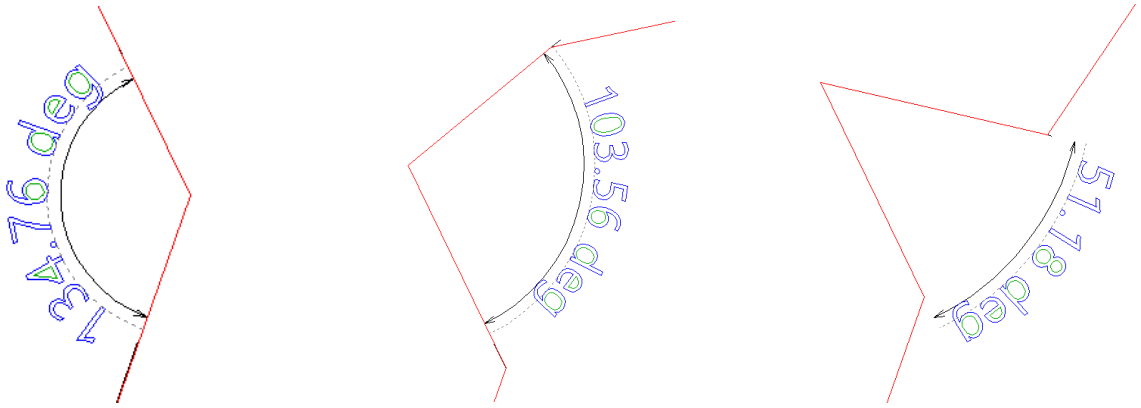


C. INTERFACE ADVANCED TABS

The ADVANCED tab takes the parameters found in the Vinyl path and simplifies them. There are 3 main sets of parameters.

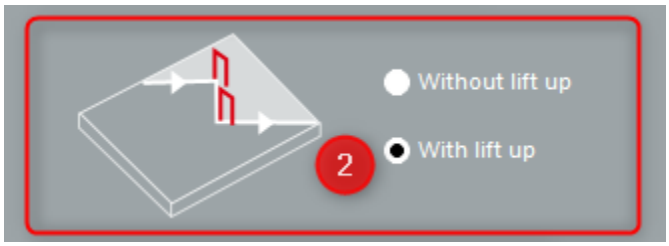


- ***"Mini and maxi angles"*** ① represent the range of angles at which the blade will or will not rise to rotate out of the material. If the calculated angle is within this range, the blade will rise. The minimum value is 0° and the maximum is 180°. Here are a few examples of angular ranges.

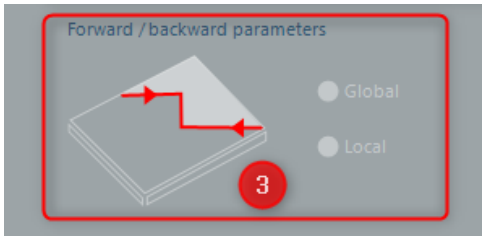


- ***The "minimum length"*** represents the smallest distance for which the blade will not rise, even if the angular range is respected because it is seen as too small.

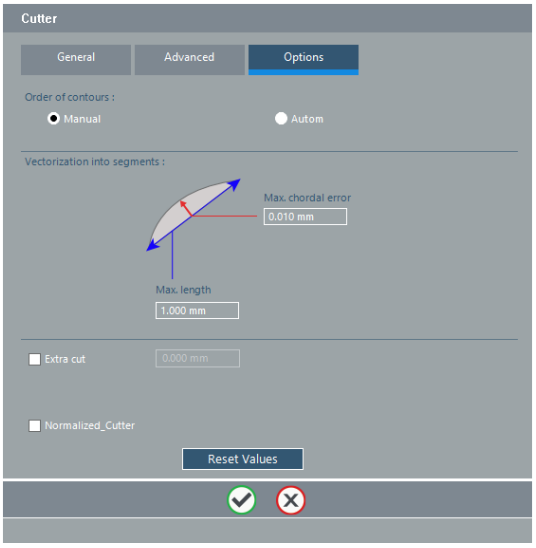
- ***"With and without blade lift"*** ②: in the case of driven blades, these 2 options allow the tool to be lifted or not, if the angular range is respected.



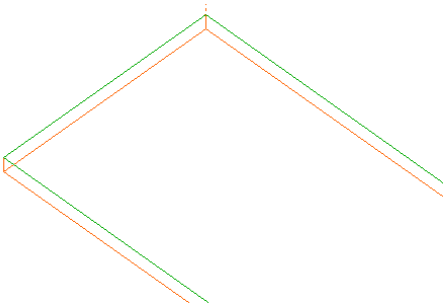
- ***« forward / Backward »*** ③***:*** the blade can go back and forth over the entire selection (global) or go back and forth contour by contour (local).

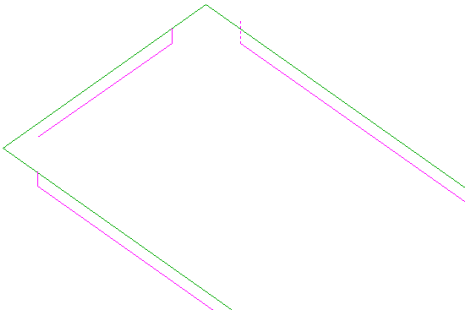


D. INTERFACE OPTIONS TAB



- ***"Contour order: manual or automatic"***: allows you to manage the order of cuts in the same way as in the standard cutter path.
- ***« Vectorize into segments »:*** These parameters have already been described above.
- ***« Additional cut»***: Below, on the left, a blade center cut, the part is "damaged", on the right, a cut that considers the blade geometry. Additional distance can be added or removed.



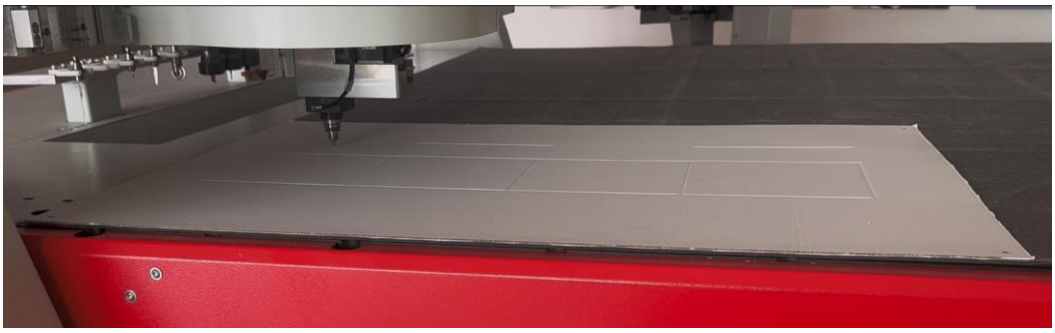


E. POST-PROCESSING

To meet the needs of this new path, a new DLL library has been created. It can be used to manage and display rotation angles in the output code for the market machines concerned.

Example code:

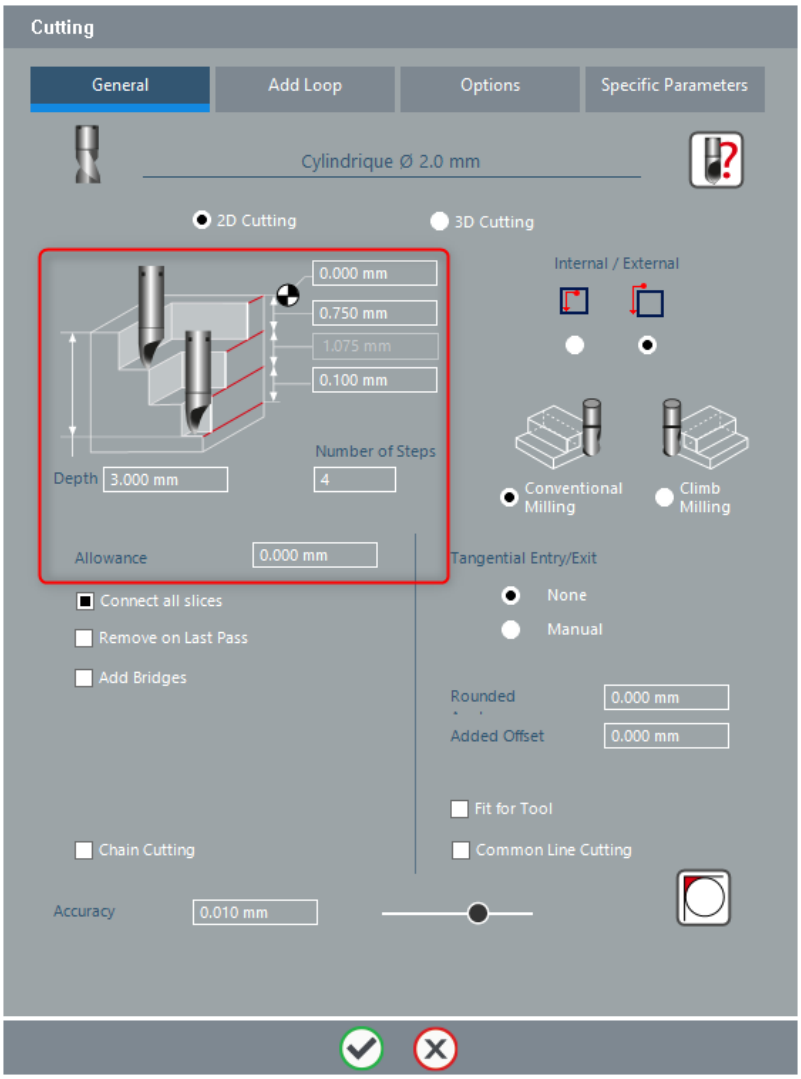
```
; Cutter
G0 X0 Y0 Z20 B0
G0 X70.815 Y64.321 Z30. B135.1
G10 X70.815 Y64.321 Z1.5 B135.1
G0 X70.815 Y64.321 Z0. B135.1
G1 X70.815 Y64.321 Z-2. B135.1 F300
G1 X60.993 Y54.532 Z-2. B135.1 F600
G1 X60.969 Y40.665 Z-2. B90.1 F600
G1 X70.758 Y30.842 Z-2. B45.1 F600
G1 X84.625 Y30.819 Z-2. B0.1 F600
G1 X94.447 Y40.607 Z-2. B315.1 F600
G1 X94.471 Y54.475 Z-2. B270.1 F600
G1 X84.683 Y64.297 Z-2. B225.1 F600
G1 X70.815 Y64.321 Z-2. B180.1 F600
X70.815 Y64.321 Z50.
M2
```



4. INTERFACE REORGANIZATION

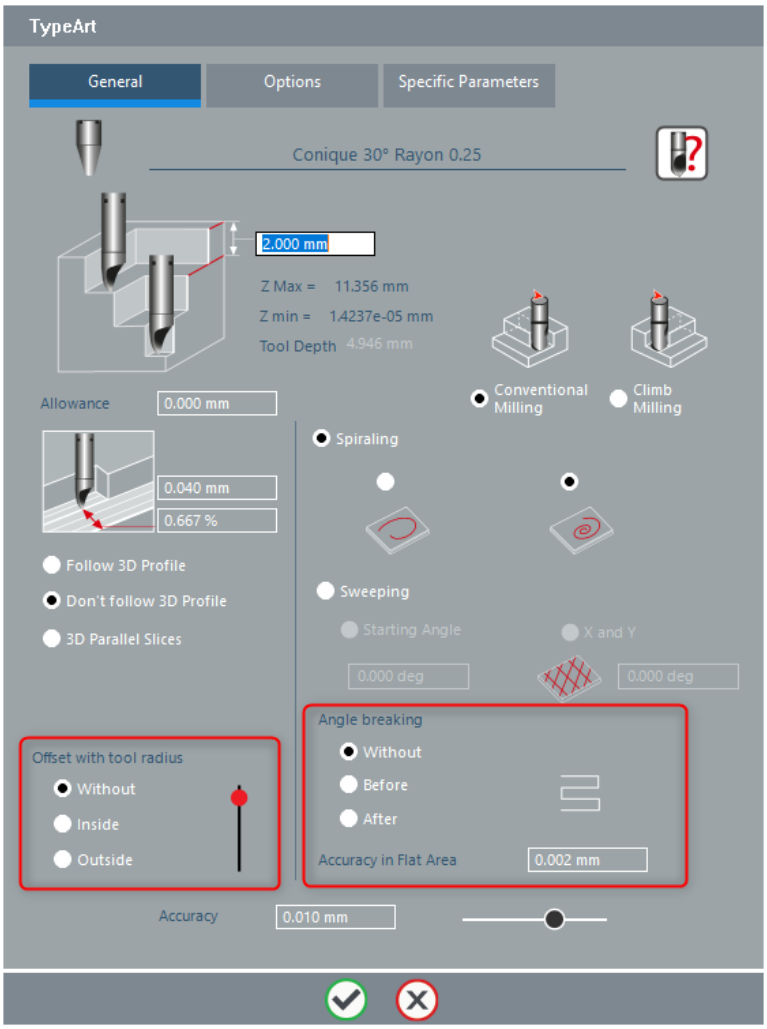
To offer greater functionality for users, some important parameters have been repatriated to the main course window.

A. CUTTING TOOL PATH 2D & 3D

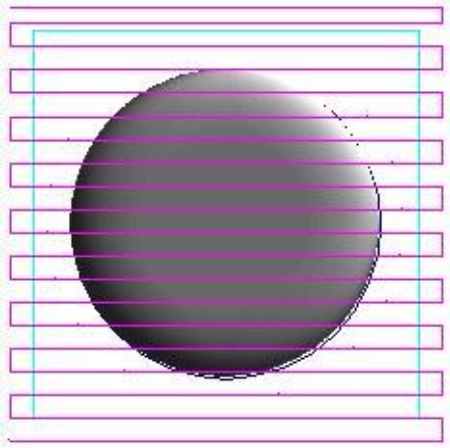


In the cutting tool path, variable multi-pass has been introduced to offer optimized management of the first and last slice. It is no longer necessary to switch to ***"Expert"*** mode to use variable multi-pass.

B. 3D TYPE ART tool path



- **«Outside»:** the center of the tool is outside the 3D zone. the offset is equal to the radius of the tool used.

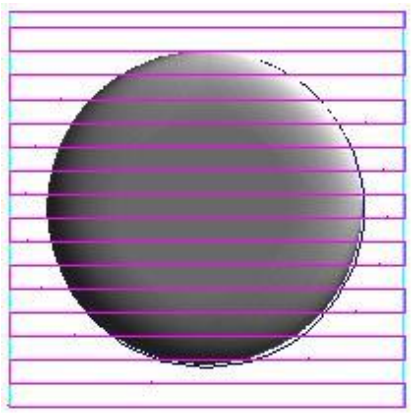


In the 3D TYPE ART toolpath, numerous parameters have also been introduced on the "General" tab to facilitate access to machining strategies.

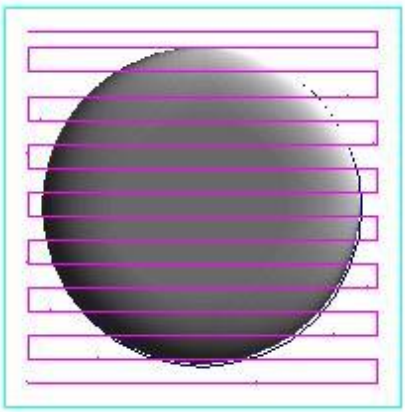
a. « Offset with tool radius»:

This parameter controls the position of the tool in relation to the 3D shape.

- **« Without »:** the center of the tool is located on the 3D zone, shown in cyan blue in the image.



- **« Inside »:** the center of the tool is retracted inside the 3D zone. The offset is equal to the radius of the tool used.

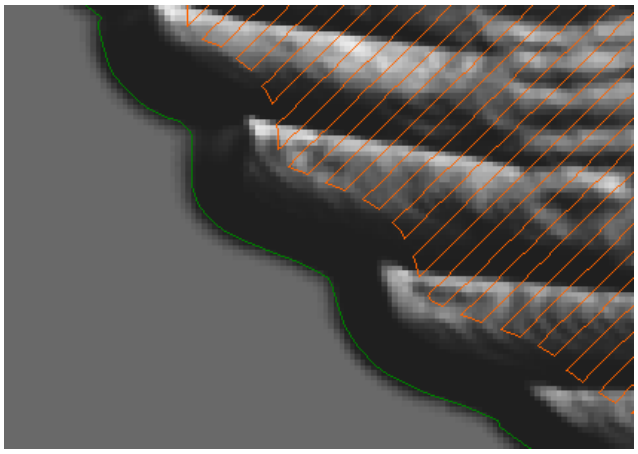


b. Breaking angle:

The angle break principle only applies when the user selects the Sweep option instead of the Spiral option.

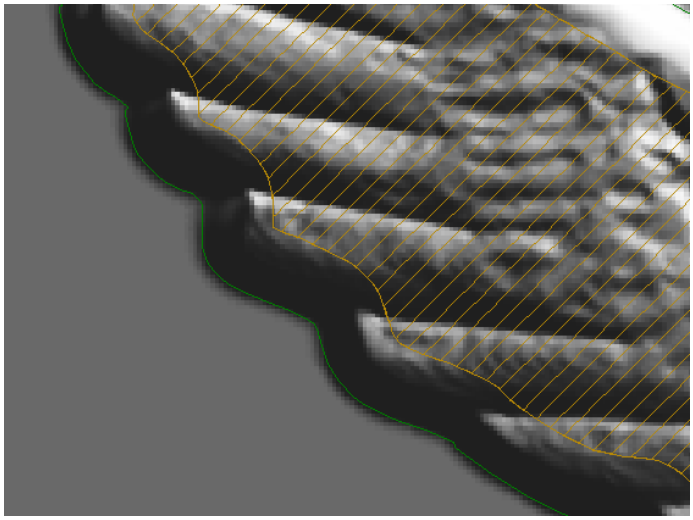
As its name suggests, the breaking angle is used to break the corners after successive side passes and avoid the effects of tool marks between overlaps.

- **« Without » Breaking angle:**



There is no breaking angle after the sweep. In practice, some material will remain along the shape.

- **"Before":** the angle is broken before the entire area is swept**.**
- **"After":** the angle is broken after the entire area is swept**.**

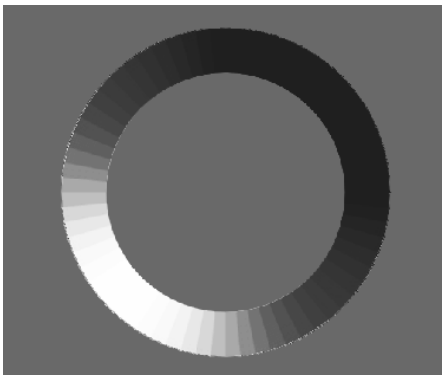


c. « Precision in the planar zone »:

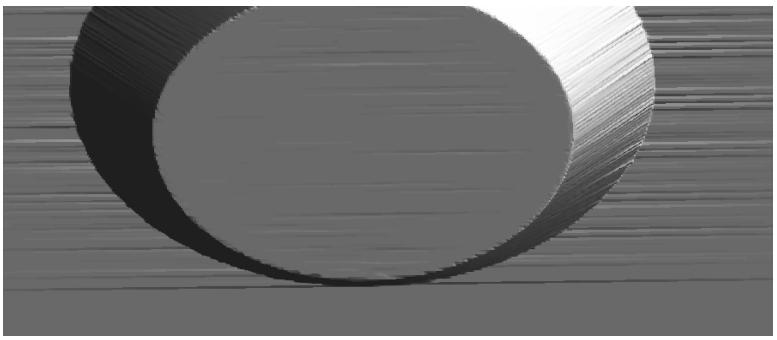
When calculating the TYPE ART toolpath, planar areas are optimally treated to avoid any degradation in machining quality, especially in metal.

Example on the following 3D:

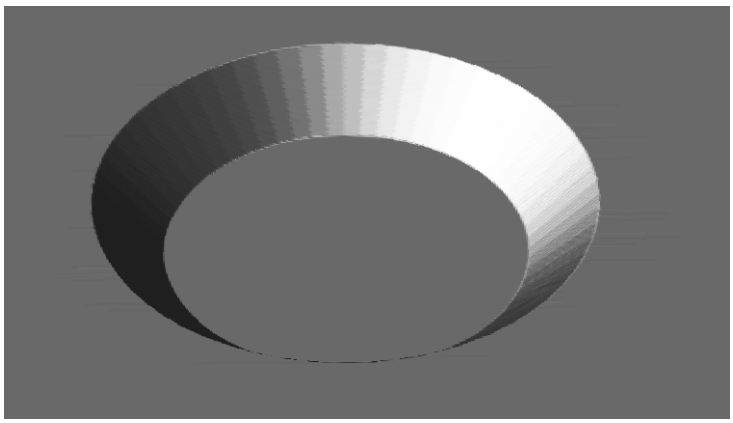
Theoretical 3D model to be machined:



Result with precision = 0.01 mm



Result with precision = 0.001 mm



Note: by increasing precision, the toolpath will be larger in terms of file size**.**

TYPE ART SOFTWARE SOLUTION

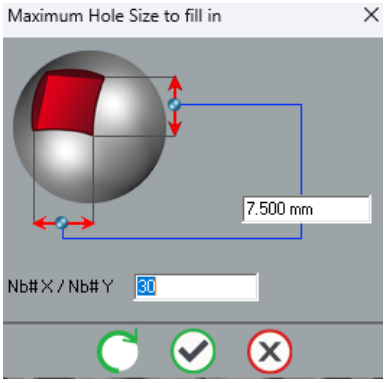
In the TYPE ART 3D CAD module, many hours of work have been devoted to making design much more interactive by considerably modifying the displays and creation steps, with a more detailed construction tree and new commands added.

1. IMPROVEMENT: "CALCULATE" button

Introduced for the first time in V14, this new dual ***UI/UX (User Interface/User Experience)*** function allows you to validate the 3D model before exiting the creation function, changing the available parameters as often as necessary before their final definition and addition in the tree parameters.
For V15, here's the list of functions that welcome this new calculation button.

Smoothing	
Advanced Weaves	
Extrude	
3D Advanced textures	
Basic sweeping	
Interpaled sweeping	
Tube sweeping	
Fit sweeping	
Multi curves sweeping	
Raise Details	
Bas-relief	
Filling holes	

This list will continue to grow as future V15 builds are released.
Below are a few examples of the interface.

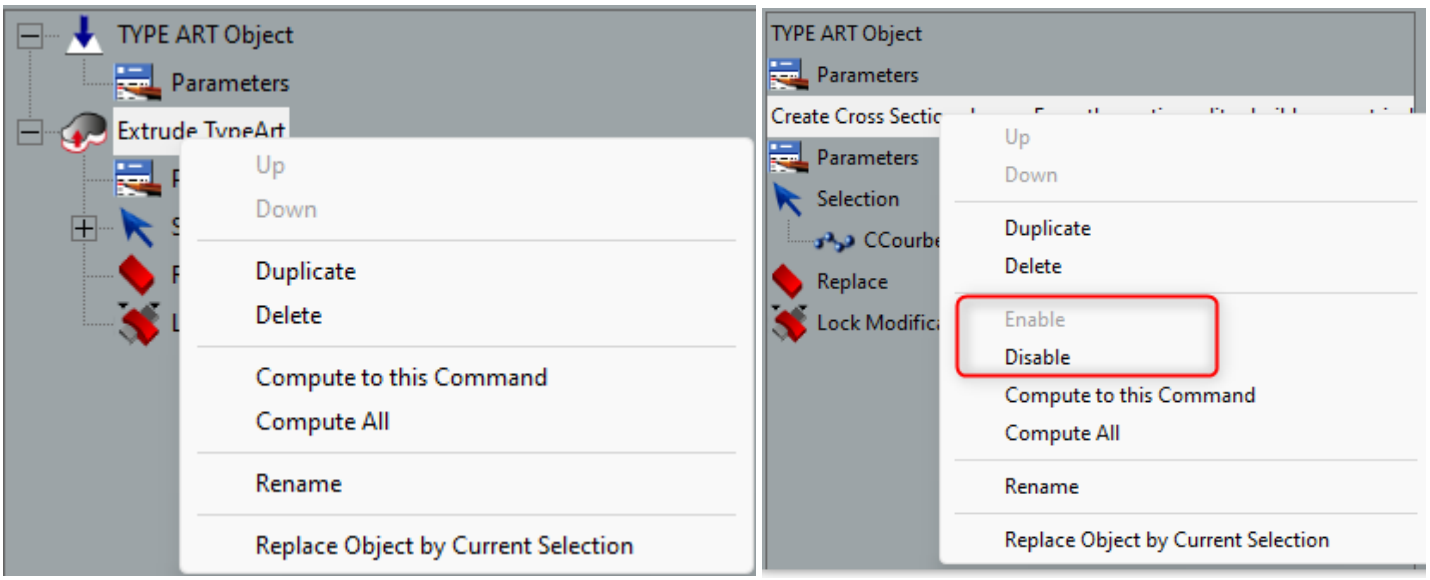


2. IMPROVEMENTS: New commands in the Construction Tree (CT)

2 new commands have been added to further enhance the user experience (UX) when creating 3D models - TYPE ART.
The ***"Enable"*** command on a function obviously activates it.
This is the default state when a function is created.

The ***"Disable"*** command on a function deactivates it.
When the tree is recalculated, the deactivated function is not considered or is no longer considered during recalculation, saving additional time during 3D creation or the creation of texture variants, for example.
You can imagine one or more scenarios in which some features are considered and others not, to end up with a totally different result thanks to the tree's parametric management.

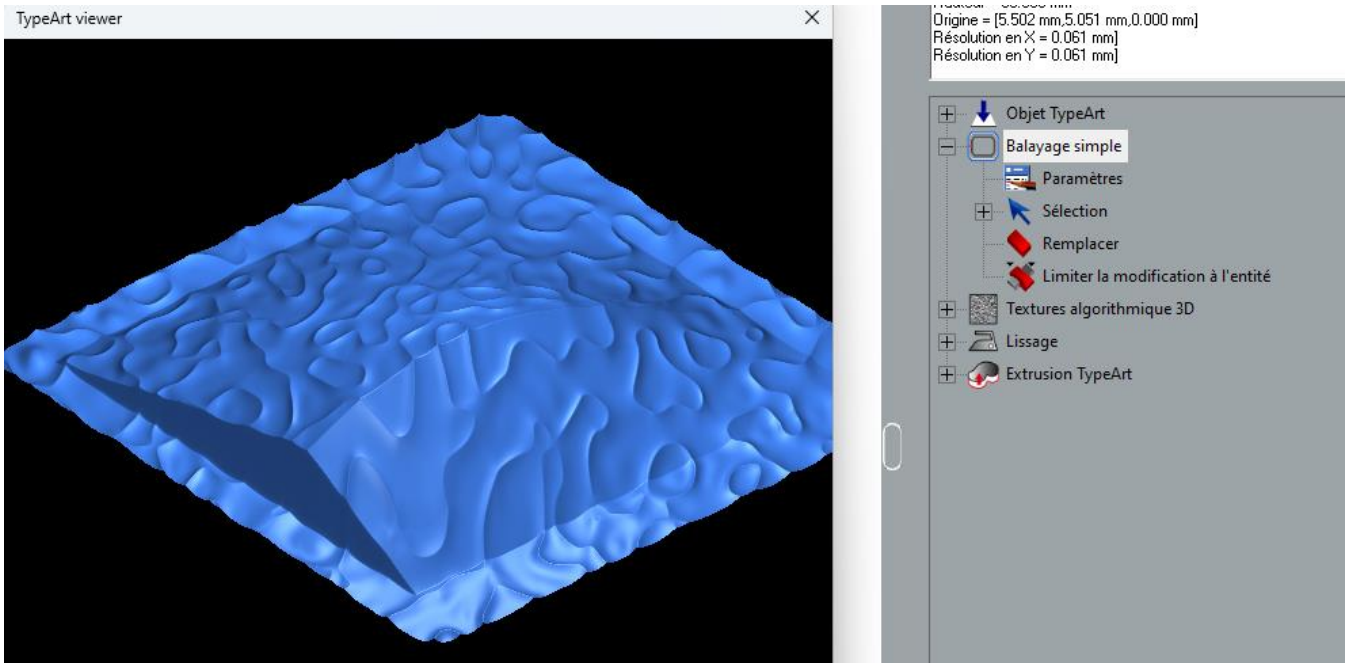
V14 vs V15



Here's how the "Activate" and "Deactivate" commands are displayed in the tree with a simple right-click.

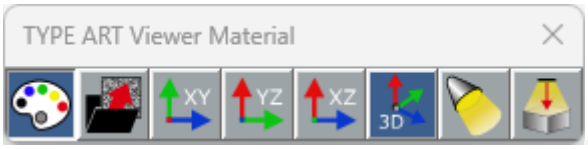
3. IMPROVEMENT: Functions in the construction tree

In version 15, all TYPE ART functions will be present in the construction tree to further enhance the user experience (UX). It is now possible to edit parameters and recalculate all functions seamlessly.



4. IMPROVEMENT: 2 Light Sources

In the 3D Viewer, it's possible to rotate the room completely through 360 degrees, but unfortunately the single light source didn't allow the result to be seen from below. To enhance this visual experience, a second light source was added just below. So, you can turn the room in all directions in real time to see the details that are interesting to visualize from any angle.



V14

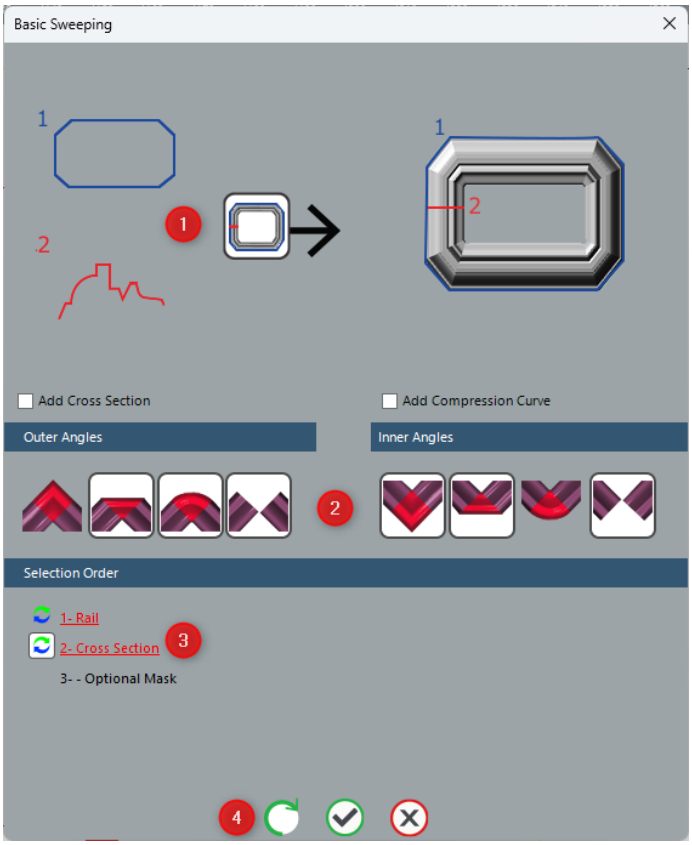
V15

5. Feature “SWEEPING CURVES”

To make 3D features even easier to use, all types of “Curve Sweeping” have been revamped regarding their interface (UI) and operations (UX). Each sweeping feature type is now launched from a dedicated icon.

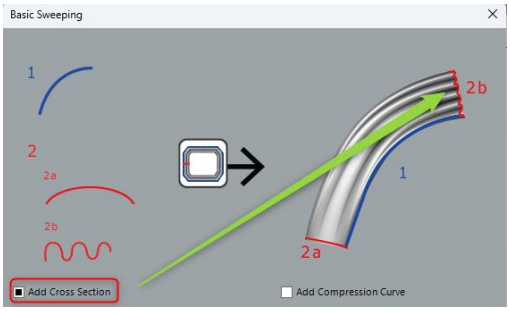
A. “BASIC SWEEPING” 

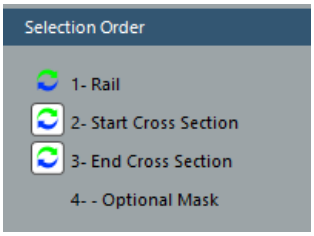
The basic sweeping is a powerful feature for creating 3D shapes from 2 simple curves. By default, it sweeps between at least 2 curves, but more curves can be added. For example, a (1) support or also called (1) Rail and a (1) Cross Section or also called (1) profile. It is also possible to add a second Cross Section, as well as a compression curve to the computation which will constraint in Z the height.
For sweeping with transitions and corners, various options are made available, such as rounding or chamfering the inside and/or outside corners. The selection of a mask with a closed contour can be judicious if you want to visualize a result only within this mask area. It should also be remembered that sweeping curves also works with 3D support also named Guides. They can manage the length of the Cross Section by compressing it. On the other hand, in the Basic Sweeping, the Cross-section is never distorted and remains constantly unchanged along the entire length of the Rail.
The interface has also been completely relooked. An illustration now ① specifies the directions for correctly using the selected components: the expected result and its selection order ③. Each feature is shown only with the parameters that can be used ②, avoiding any confusion. And finally, if you use  the ***« Recompute »*** ④ icon the preview result may or may not be correct, but you can always reverse the direction of the curves (Rails and Cross Sections) with the following icon  , which present the advantage to do not have to go back in the point mode to modify the directions. With this new interface and new design process, it has become easier to create any 3D Bas-Reliefs.

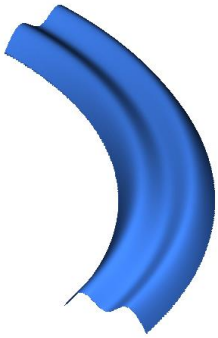


The illustrations below show the range of options for each selected parameter and the right order of selection:

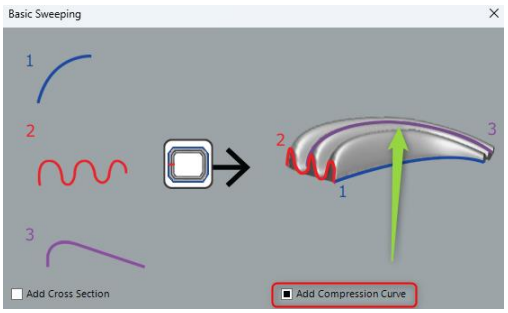
- Add a second Cross Section, then the illustration updates:

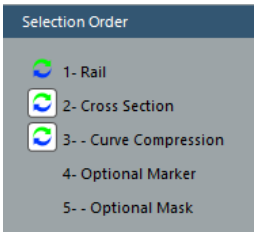


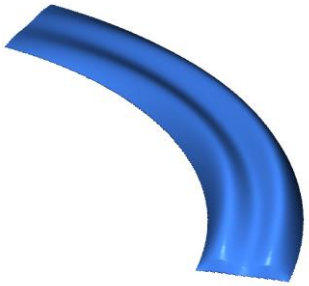




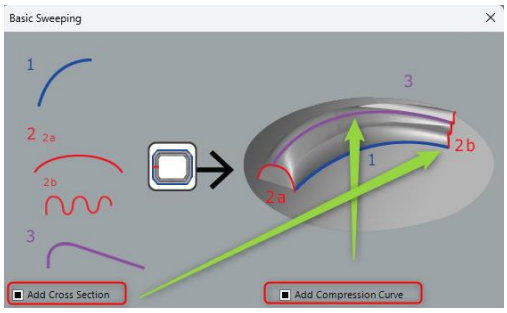
- Add a Compression Curve and a new illustration is presented:

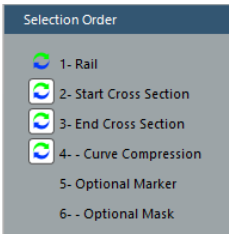


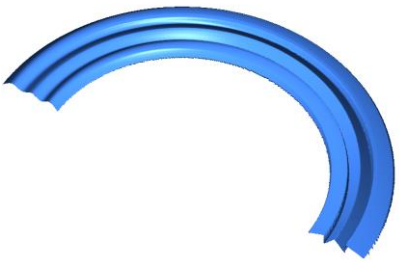




- Add both a second Cross Section + 1 Compression curve and another interface displays:

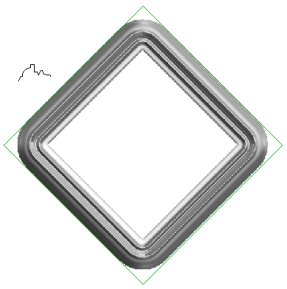
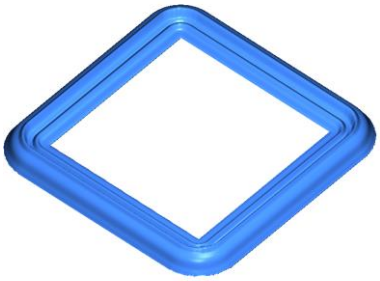




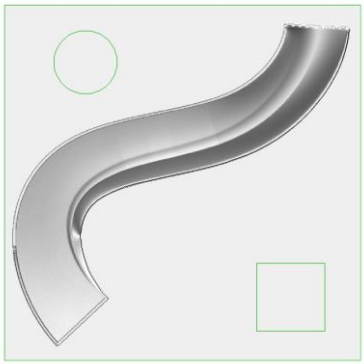
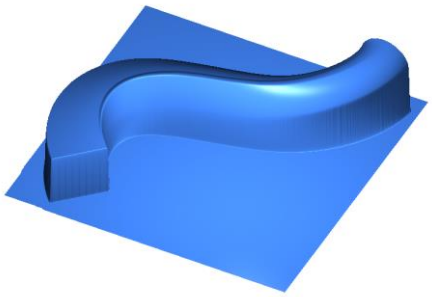


Other examples built with the Basic Sweeping features:

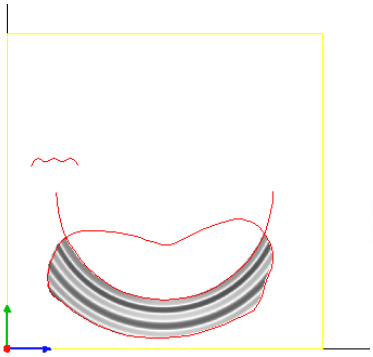
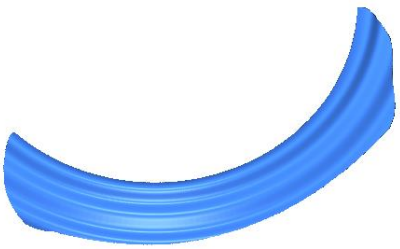
- 1 Rail + 1 Cross Section

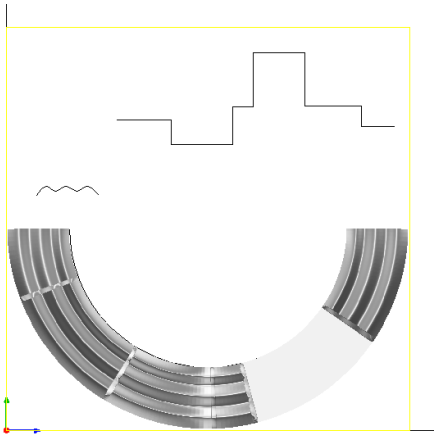
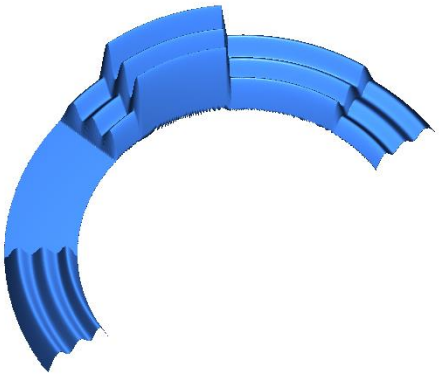
- 1 Rail + 2 Cross Sections (loft)

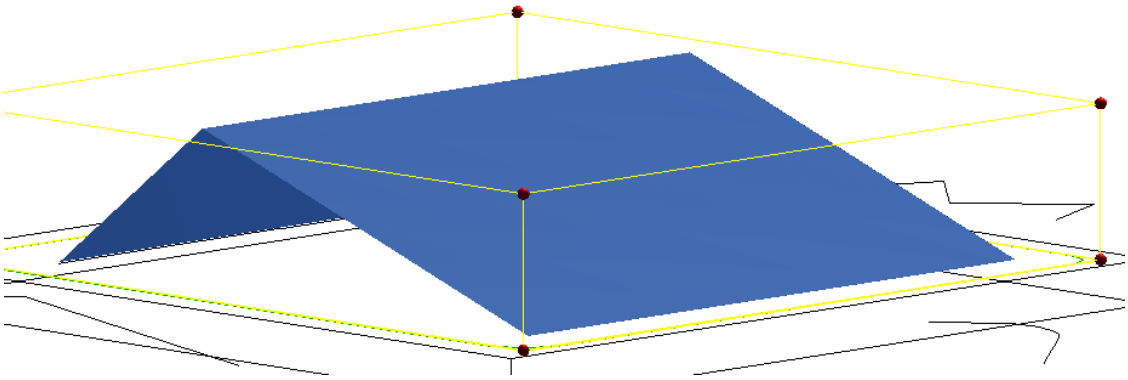
- 1 Rail + 1 Cross Section + 1 Mask

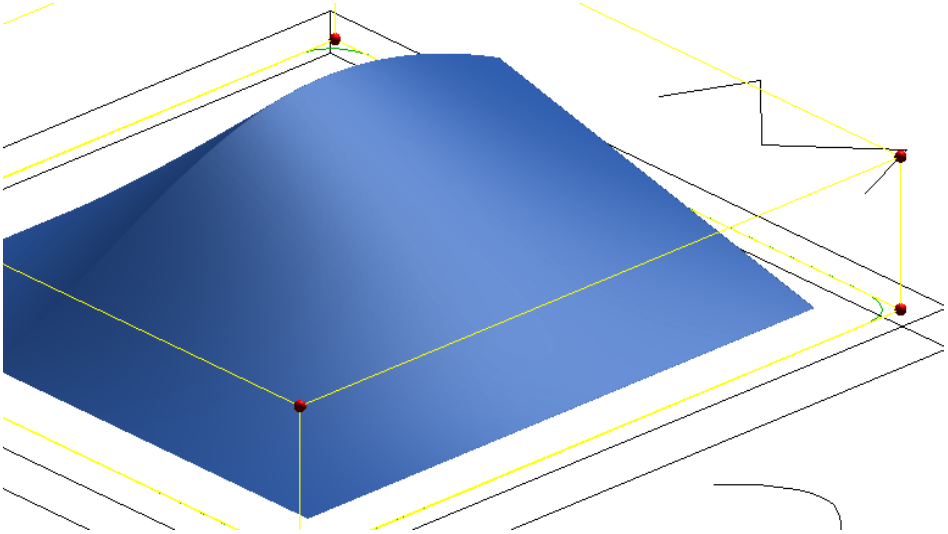
- 1 Rail + 1 Cross Section + 1 Compression Curve

Result without compression curve: we have a constant Z corresponding to the variation in Y of the cross-section.

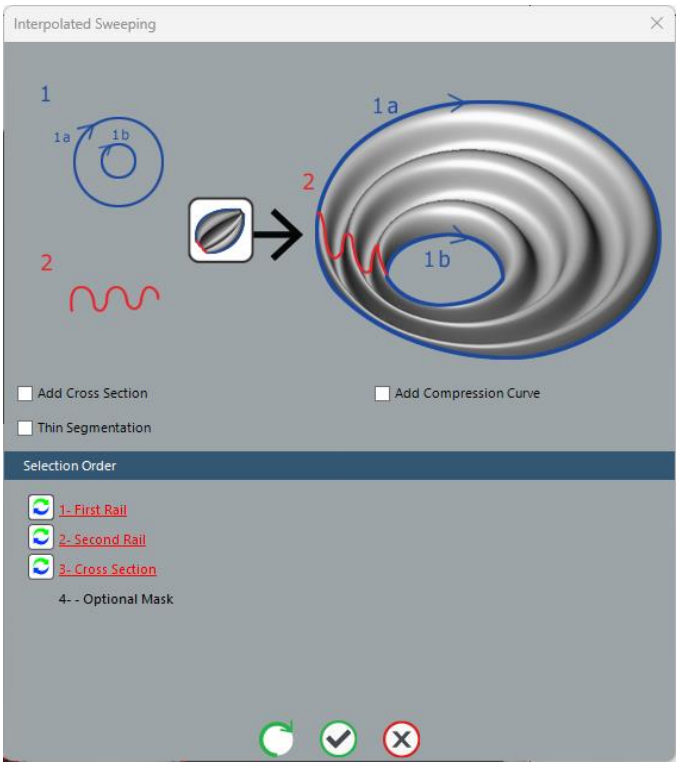


With a compression curve, Z varies according to the compression curve

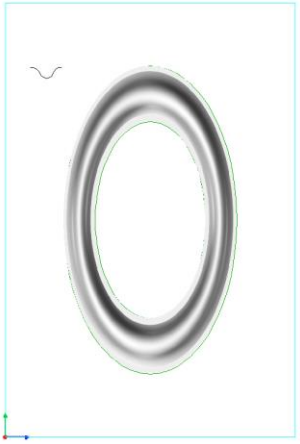


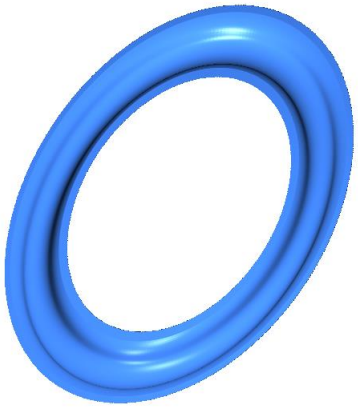
B. SWEEP BETWEEN 2 RAILS ”INTERPOLATED SWEEPINGS”

Sweeping with 2 Rails allows you to position one or 2 Cross Sections between and all along the 2 Rails also named supports. The options of the Basic Sweep remain similar, such as the addition of a Compression curve and a possible area Mask. Unlike the Basic Sweep, the Cross Section shapes are ***NEVER*** respected as a fixed form. It will tend to be extended or compressed. The Fine segmentation produces an Aesthetically and more Artistic result if checked.

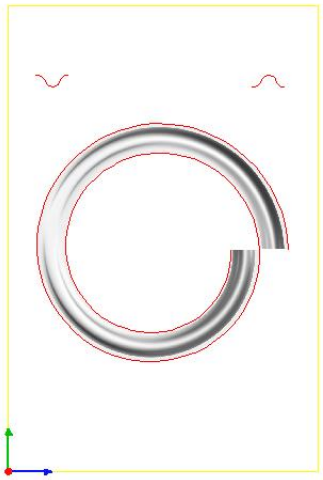


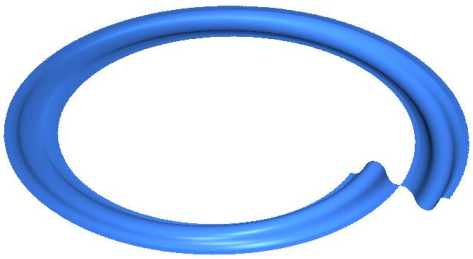
- 2 Rails + 1 Cross Section



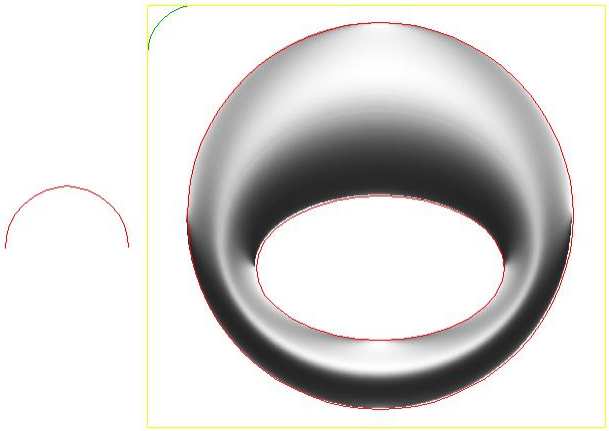


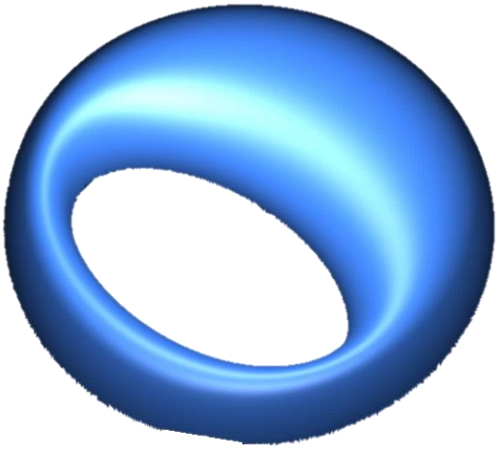
- 2 Rails + 2 Cross Sections

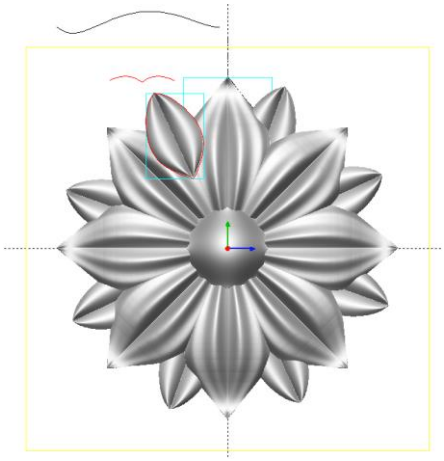


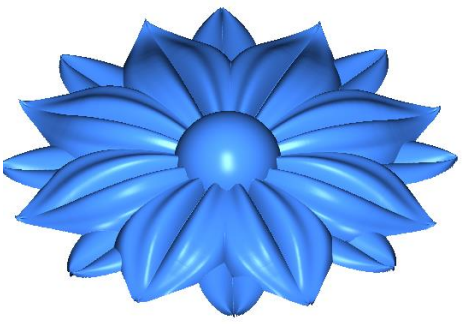


Other examples of sweeping through 2 Rails.



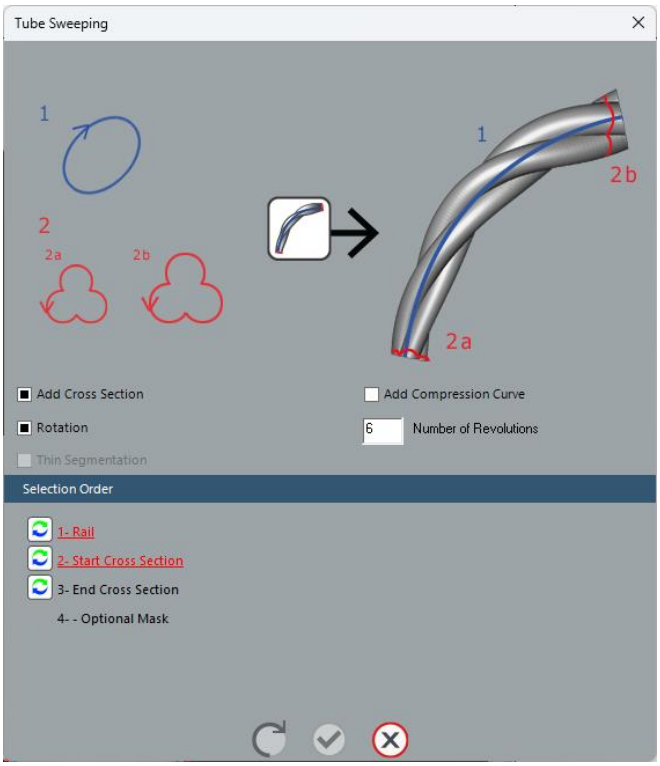




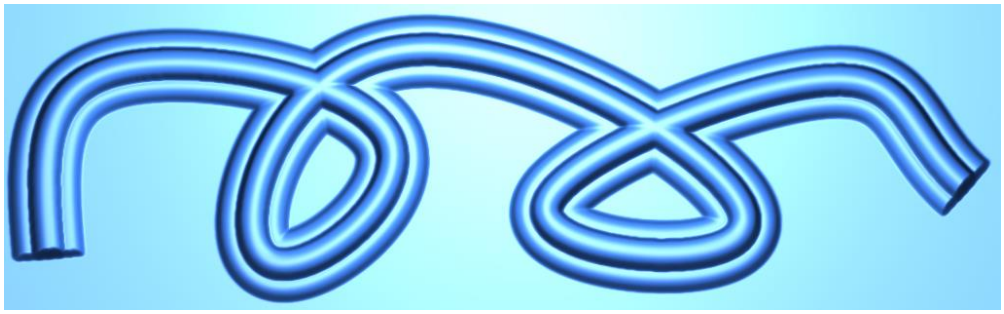


C. SWEEPING "TUBE"

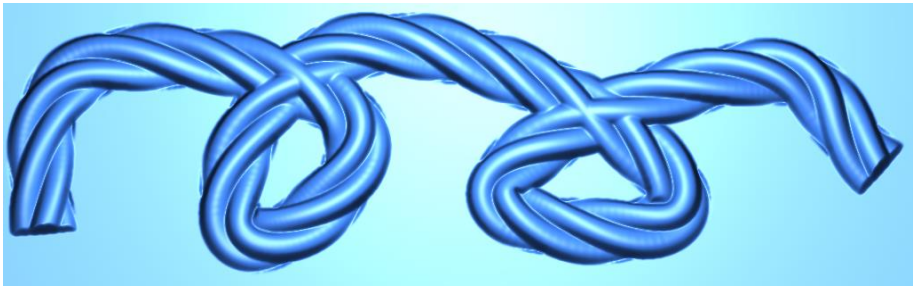
The TUBE sweep, as the name inevitably implies, passes the Cross Section through the middle of the Rail like a tube extrusion. There are two (2) additional features compared to the first two (2) sweeps type shown above: Rotation and the Number of Revolutions.
This feature can be used to create magnificent twisting effects, as well as marine multi-cording effects.



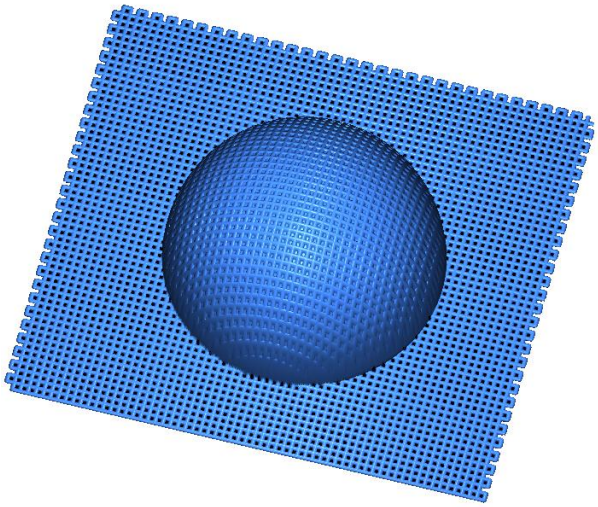
- Result without the Rotation option



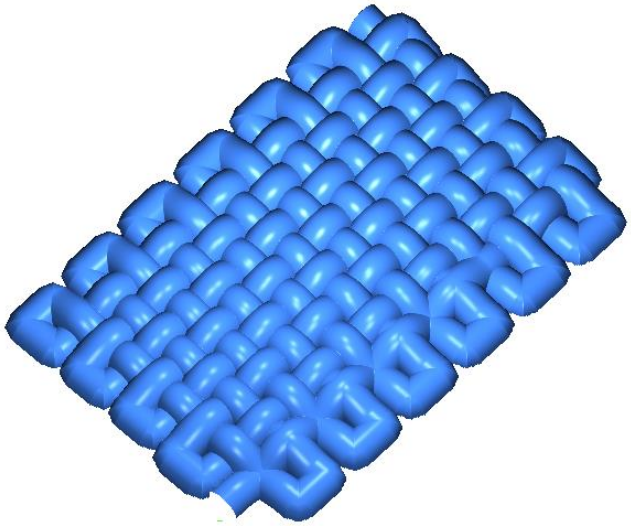
- Result with the Rotation options and a total of 8 revolutions



- Other examples of Tubes

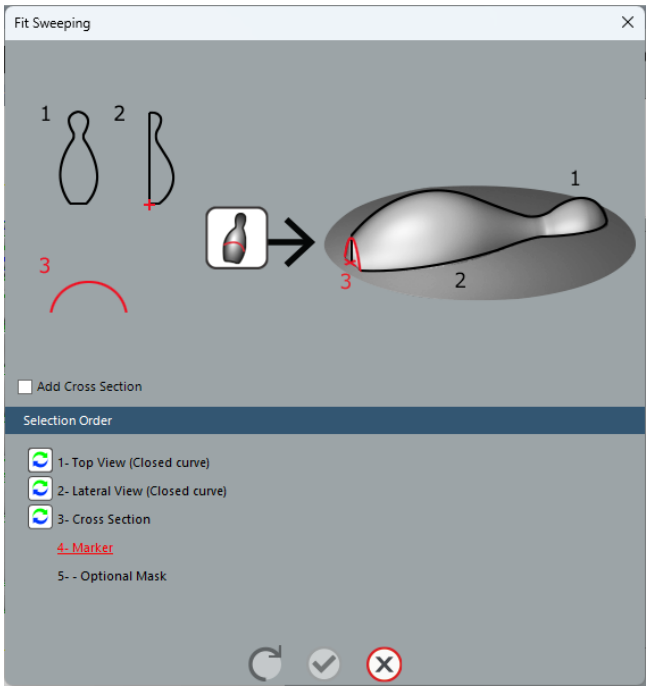


NB: Weaving is another Sweeping capability under its own icon 

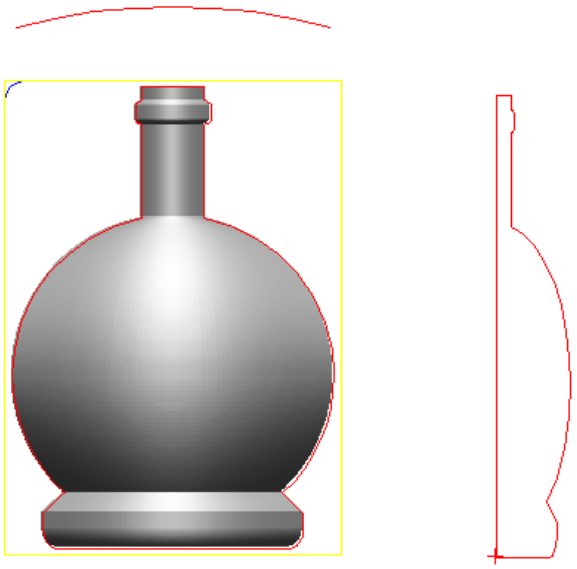


D. SWEEPING BY PROFILE(S)  "FIT"

The FIT Profile sweeping is one of the most advanced of the series, but also the the most complex to implement. It is made of the combination of a Top View + a Side View + a Position Marker and finally a Cross Section to create the final 3D shape.
Both the Top view and the Side view must have the same dimensions.

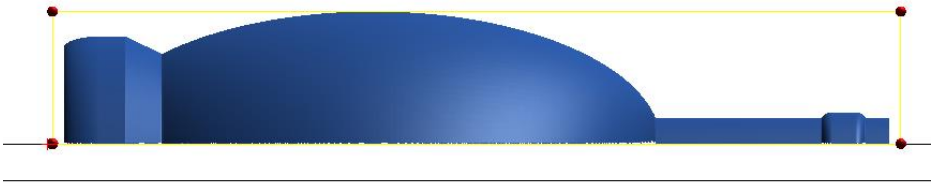


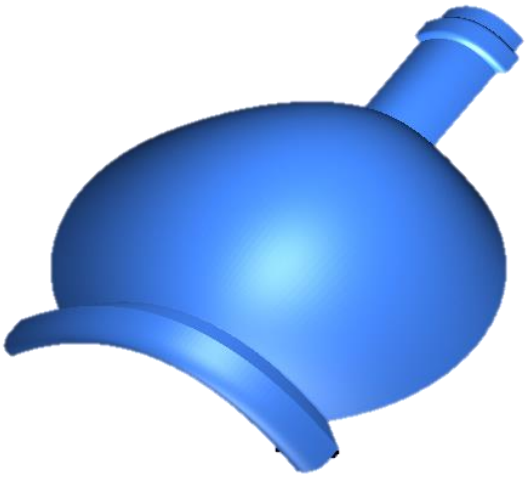
Top View



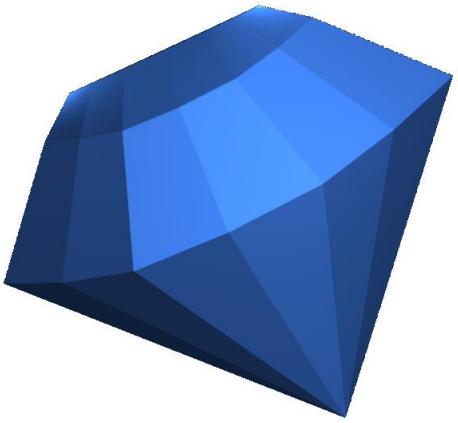
The result is built from the side view that has its Z height set along X:

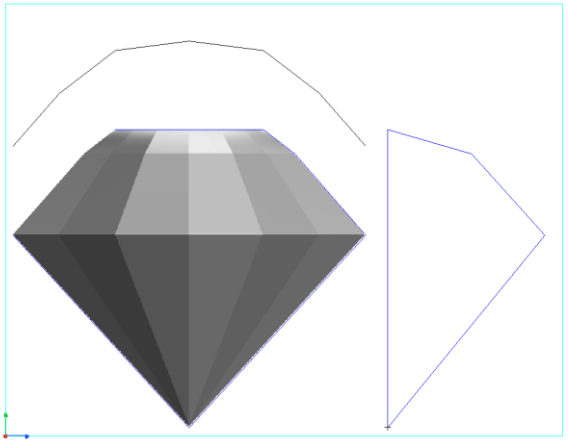
The width of the Side View becomes the Z height in the YZ view orientation





The FIT allows to define the evolution in Z from the side view and sweep a Cros Section from Top to Bottom
Other examples obtained with the FIT feature:





TYPE CAD SOFTWARE SOLUTION

1. STANDARD or SILENT INSTALLATION

A. INSTALLATION STANDARD

Another important task was to bring the installation into line with the requirements of the latest applications running on Windows systems. With IT security becoming more and more of a major issue for all businesses, Microsoft continues to impose very strict rules on these OS installations to minimize any IT intrusions. Installation will therefore take place in 3 different directories:

1. *C:\ProgramData\Gravotech\TypeEdit_V15-LaserType_V15*
2. *C:\Program Files\Gravotech\TypeEdit_V15-LaserType_V15*
3. *C:\Users\XXXX\AppData\Local\Gravotech\TypeEdit_V15-LaserType_V15\CONFIG_USER*

Installation must always be carried out with an Admin profile. No special privileges are then required for day-to-day use of our applications. From now on, the default installation directory is ***" C:\ProgramData\Gravotech\TypeEdit_V15-LaserType_V15"***, which contains all files that can be modified or changed by the user. Windows makes this directory readable and writable by all users of the workstation, which is necessary for our applications when the user changes parameters, modifies the post-processor, acts on interface settings, etc.

All files (DLLs, language directories, documentation, etc.) are grouped together under the ***" C:\Program Files\Gravotech\TypeEdit_V15-LaserType_V15"*** directory. These are static, sensitive files which, in principle, will never be touched by the user.

Directories usually modified by the user will now be found in ***"ProgramData"***, such as CONFIG, POSTPROTE, scripts, symbols, etc.

If during installation, the user decides not to install in the default directory, then all directories and files that are under ***" C:\ProgramData\Gravotech\TypeEdit_V15-LaserType_V15"*** will be in the directory specified by the user, for example ***C:\TYPEEDIT_V15.***

On the other hand, static and sensitive files will always be installed in ***C:\Program Files\Gravotech\TypeEdit_V15-LaserType_V15*** This is a Windows requirement and a mandatory step.

In ***C:\Users\XXXX\AppData\Local\Gravotech\TypeEdit_V15-LaserType_V15\CONFIG_USER*** are grouped together all the settings files for each user profile: shortcuts, favorites, etc. If several people are using the same PC but logging on with different profiles, then each profile will have its own settings.

With this new approach, in compliance with Microsoft's rules, our applications are also much less sensitive to random antivirus reactions. They won't see them as a potential threat, if at all.

In addition to this rule-compliant installation, a recurring customer request was also met: to ***be able to recover parameters from an older version (from V14 onwards).***

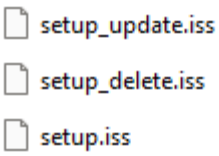
All post-processors, whether scripted or not, the tool database, machining strategies, favorites, shortcuts, etc. will be recovered and installed in the new V15 version without any user intervention.

Last but not least, the installation will save INI files with default settings in a dedicated directory. INI files are sometimes corrupted for a variety of reasons, so with V15 one or more INI files can be manually copied with standard parameters. In the CONFIG directory, there will be another directory ***\config_maste*** where all INI files will be present.

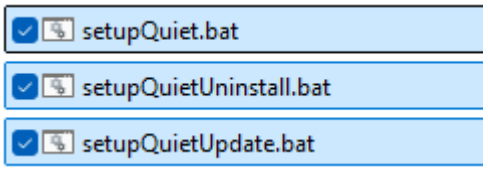
B. SILENT INSTALLATION

For large organizations wishing to roll out version V15 across their entire organization, this is now possible by launching an overnight installation in "Silent" mode, without any user intervention. There will be no windows displayed, no user input required. The IT specialist in charge of deployment will be able to configure his installation using the parameters below.

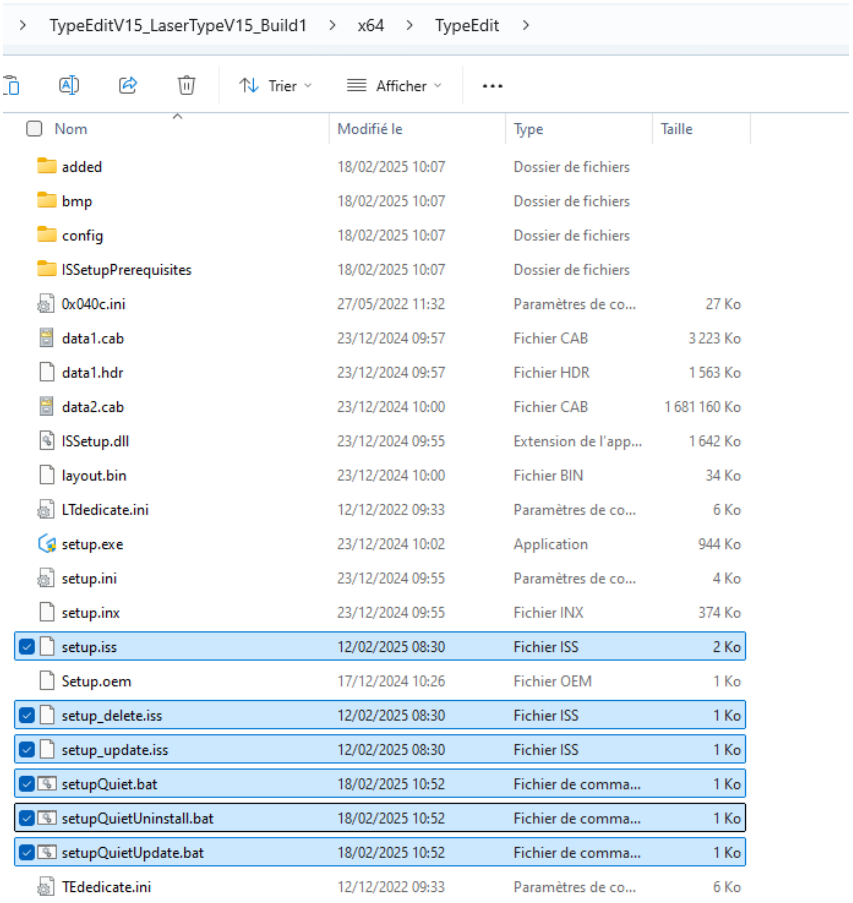
We have prepared sample files to simplify implementation. Silent installations comprise 3 files representing the 3 types: an initial installation (Setup.iss), an update (setup_update.iss) and an uninstallation (setup_delete.iss).



And to install them, we have prepared the following executable files:



These 6 files are located at the root of the installation directory. They must not be moved.



Below are the steps involved in setting up an initial silent installation.

- ***Customize the file according to your information***

ISS files are text files that can be edited and modified using Notepad, for example. These files contain commands with values (do not modify, delete or move them within the file), as well as input fields. These can be modified and adapted to your organization.

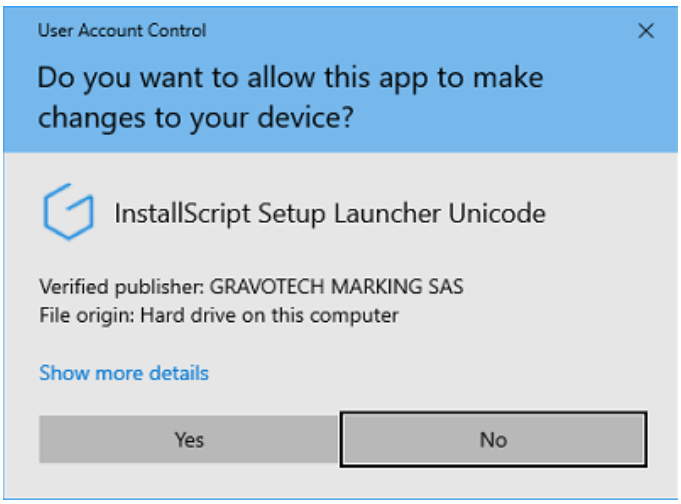
Only the following value fields can be modified:

✓ szEdit1=Nom	User name or company name
✓ szEdit2=Adress	Adress
✓ szEdit1=Téléphne	Telephone no.
✓ szEdit2=Fax	Fax No.
✓ szEdit3=email	User or company e-mail
✓ szDir=C:\TypeEdit_V15-LaserType_V15	The installation directory

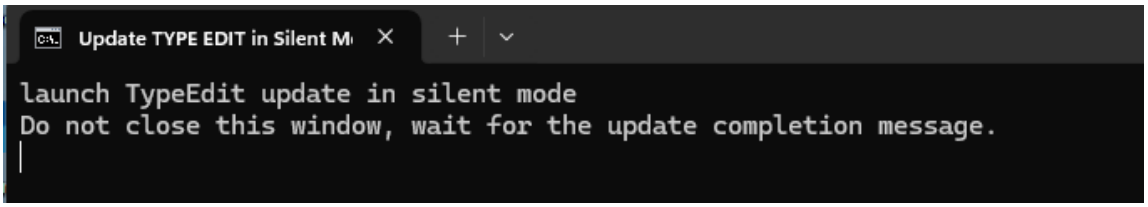
- Launching

  Thanks to the ****.bat files***, implementation is very simple.

  ✓ Double click on ***« setupQuiet.bat »***
  ✓ An authorization window appears:



Once validated, the entire system can be autonomous.
The same principle applies to the ***« setupQuietUpdate.bat »*** and ***« setupQuietUninstall.bat »***



If the DOS window is open, don't close it and let the installation proceed.

C. UPDATE & UNINSTALL

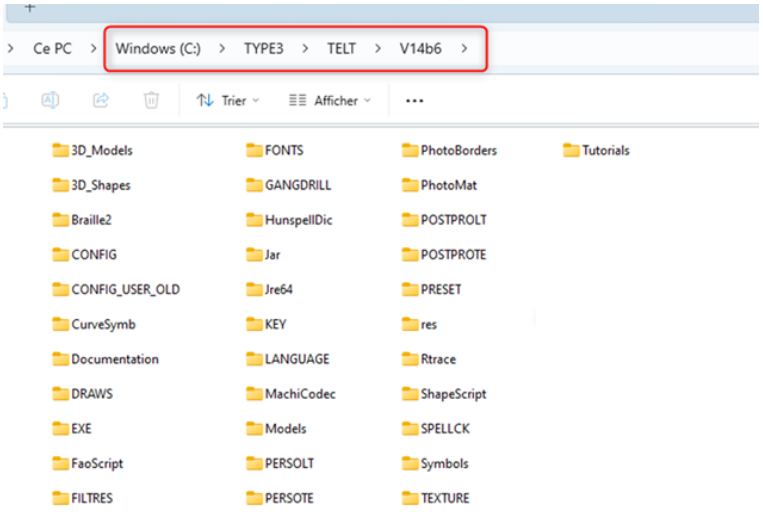
1. UPDATING

In addition to this installation, which complies with current regulations, 2 recurring customer requests will also be satisfied:

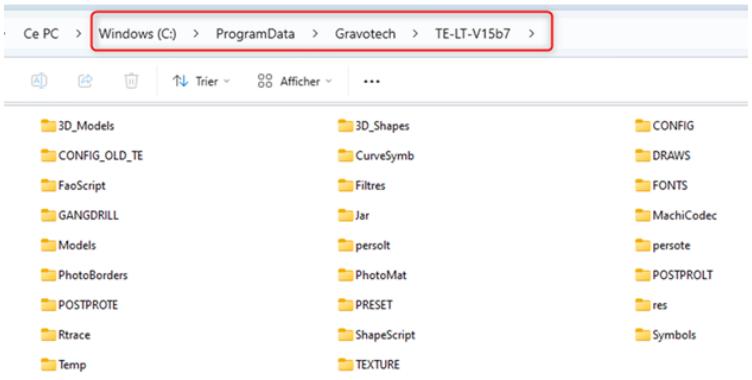
a. Recover settings from an older V14 version (only). In this way, all post pros (scripted or unscripted), the tool database, machining strategies, favorites, shortcuts, etc. will be recovered and installed in the new V15 version without any user intervention.

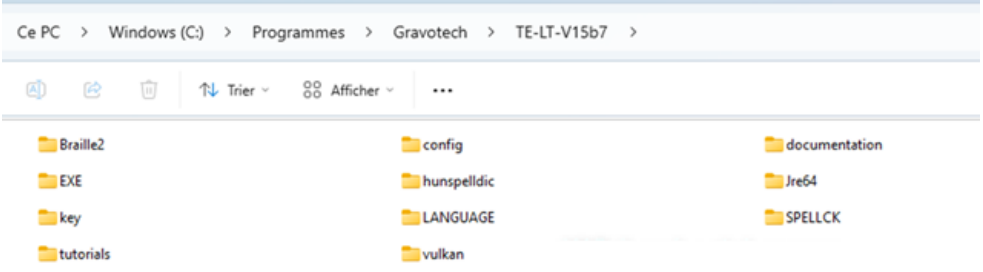
b. Settings from older versions V13 and earlier cannot be taken over, as the data format has changed: switch to Unicode, 64-bit, new parameters in toolpaths, etc. For these versions, you still need to do this manually, remembering to convert the files to Unicode.

c. Updates are now fully operational. After installing a V15 build, it is possible and preferable to update it only to a higher build. This will be quicker and more efficient.
Example of installation under V14 and V15
V14 a single directory.

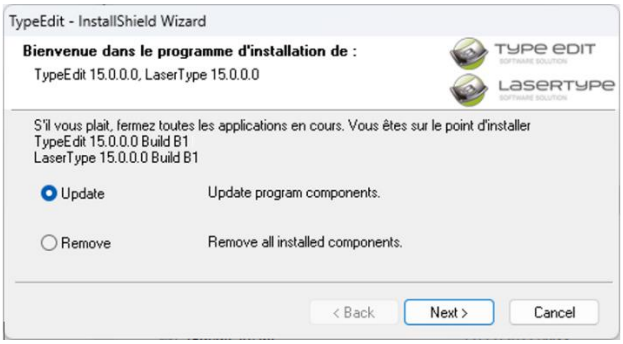


The V15 installation is split into 2 directories:





2. UNINSTALL



« Remove installation » as its name suggests, will permanently uninstall TYPE EDIT or LASER TYPE from your computer. All information will be deleted, notably in the registry, etc.
Directories containing files created by the user will still be preserved, but those installed by the master will be permanently deleted.

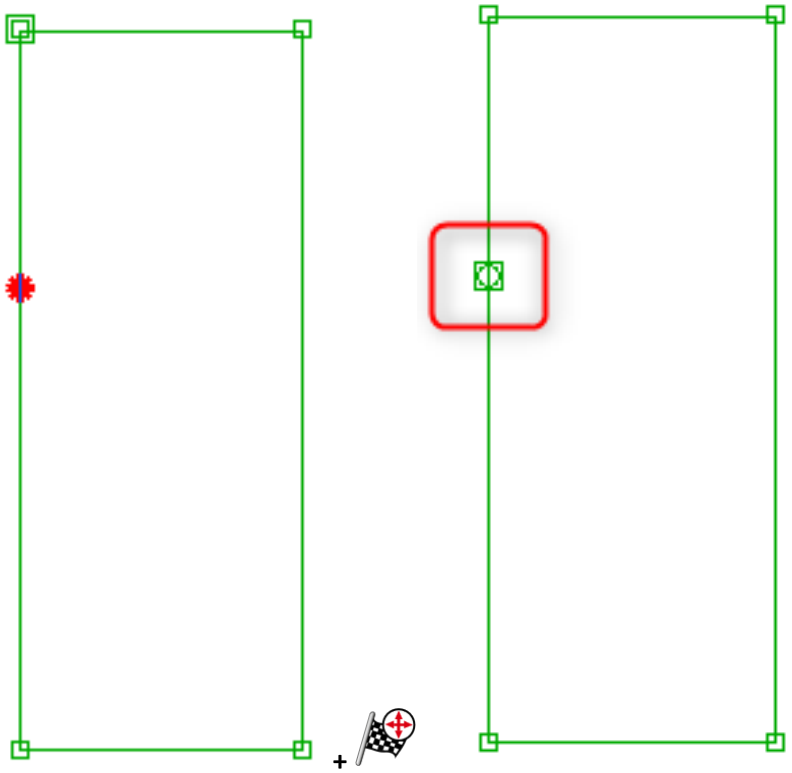
2. NEW FEATURE: MOVE STARTING POINT

The starting point is a key element in the process of cutting lettering or various shapes. It represents the point of entry into the material for the cutting algorithms. The position of the starting point, which determines where the tool begins to penetrate the material, can vary according to several factors: the nature of the material, the type of machine (with or without suction), the tool used, and the cutting specifications.
It is important to note that there is no universal solution for defining this point. Depending on the specific needs of each user, we propose several methods to cover a wide range of configurations and guarantee optimal cutting in all situations, according to your cutting conditions.

A. In "Point" mode:

The function is in the Point Mode palette:

During construction, the starting point is, for example, at the top left. We want to change this position. In point mode, select a position in the curve, then click on the "Move start point" function. This will perform 2 actions: create a point on the curve at the cursor position, then move the starting point from this new point.



B. In "Selection" mode

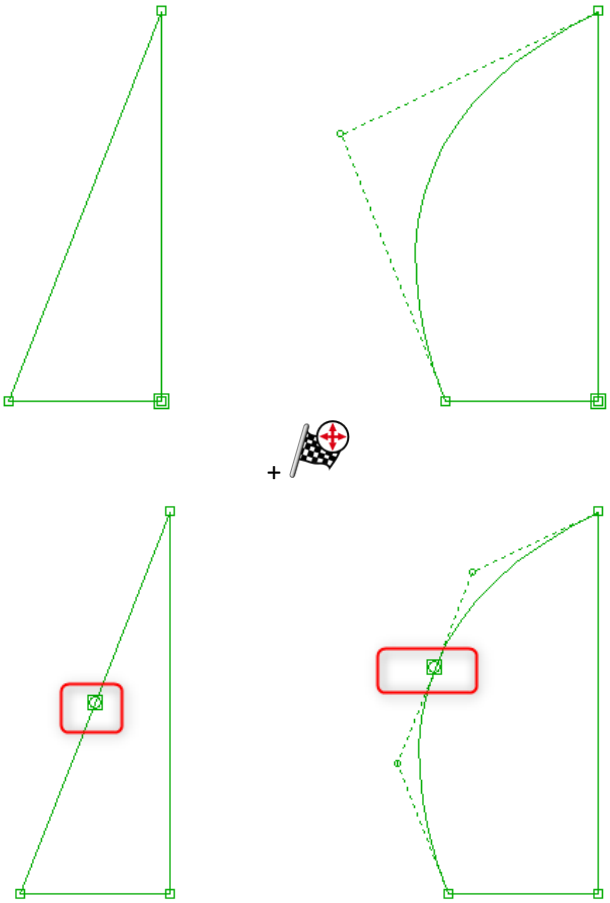
The function is in the "Shape manipulation" palette.  :

In selection mode, select contours or combined or grouped contours, then launch the function. Several scenarios are possible:

1. single contour is selected. By clicking on the curve, 2 actions are performed: the creation of a curve point at the cursor position, then the movement of the starting point to this new point.
2. Several contours can be selected, combined or grouped. Clicking on a curve will produce the same result as in case 1.

A combined approach with the snapping mode can be interesting. With the snap positioned on the control point, a simple click will move the starting point to this new point. This is very practical.

Another option can be used with the CTRL key. So always start by selecting combined or grouped contours. By holding down the "CTRL" key and clicking on a point on any curve for each selected curve, the starting point will automatically move to the middle of the largest segment or arc in all the curve. In these examples, the starting points are at bottom right.



If contours are combined or grouped, then the function will move the starting points of all curves to the middle of the largest curve section. This is a very efficient and effective way of changing all selection starting points in a single action.

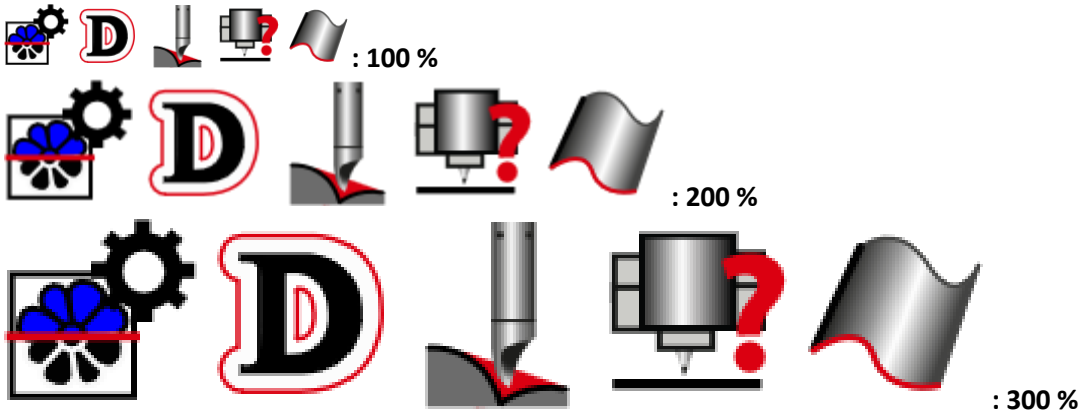
In both cases, switch to "Point" mode.  to view the result.

3. FASTER LAUNCHING and FULL WINDOWS COMPATIBILITY

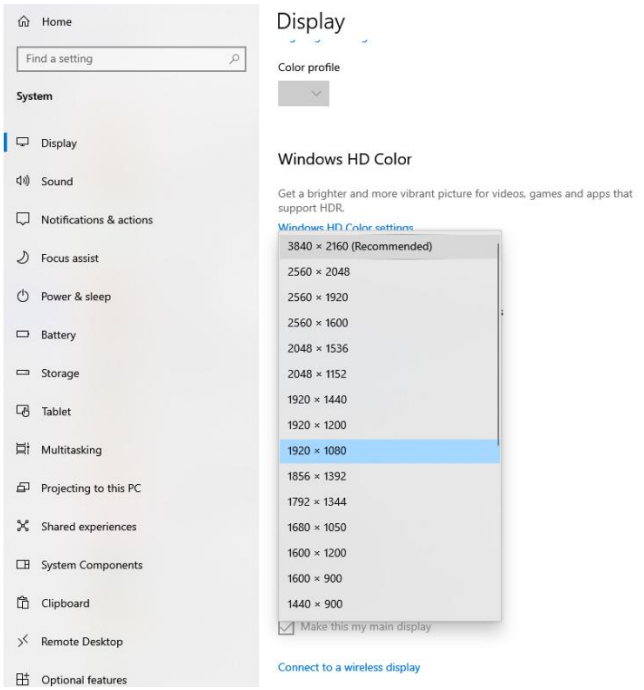
An important point for improvement is the application launch time. This has now been halved to around 20 seconds.
What's more, this V15 version is 100% Windows compatible and exploits the full potential of your graphics card in terms of available video RAM and GPU.

4. 4K SCREEN COMPATIBILITY

In version 14, icons have been converted to SVG format, a vector-based format that keeps their resolution unchanged, so they look sharp on all screen sizes.

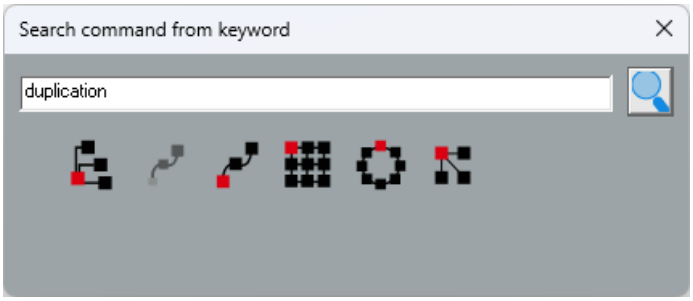


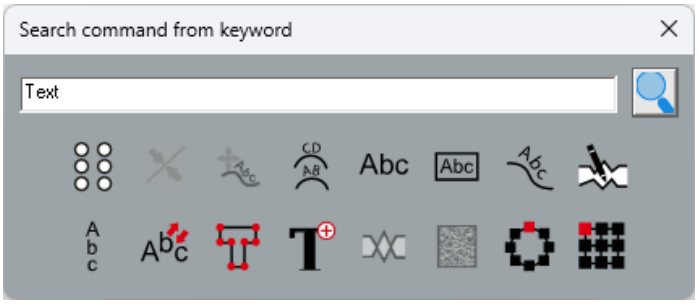
On V15, the application automatically takes screen resolution into account, adapting not only tools to the right size, but also all windows and text display.



5. NEW FEATURES: ADVANCED SEARCH TOOLS

If you don't know where a function is, but remember its name, we've developed this powerful new tool to find all the functions in TYPE EDIT or LASER TYPE referring to the keywords entered in the search.
Here are 2 examples of searches and their associated functions.

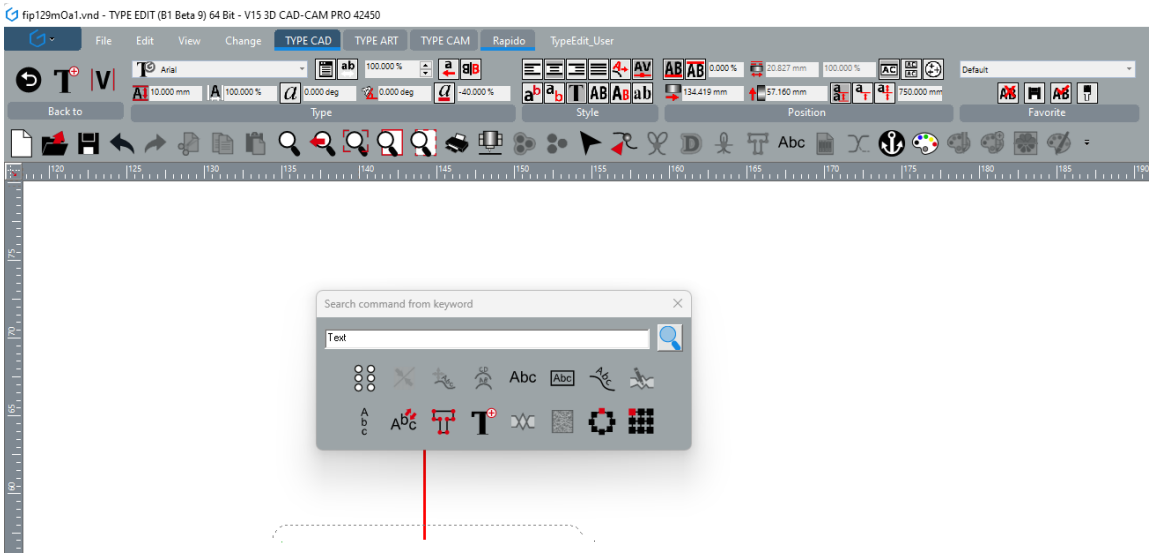




Once the list of functions has been found, you can click on the function to launch it from the search window. Please note that sometimes a selection must be made before the function can be launched.

In our example, if the user clicks on Abc

Then we'll have this:



The parameters for creating texts are displayed.

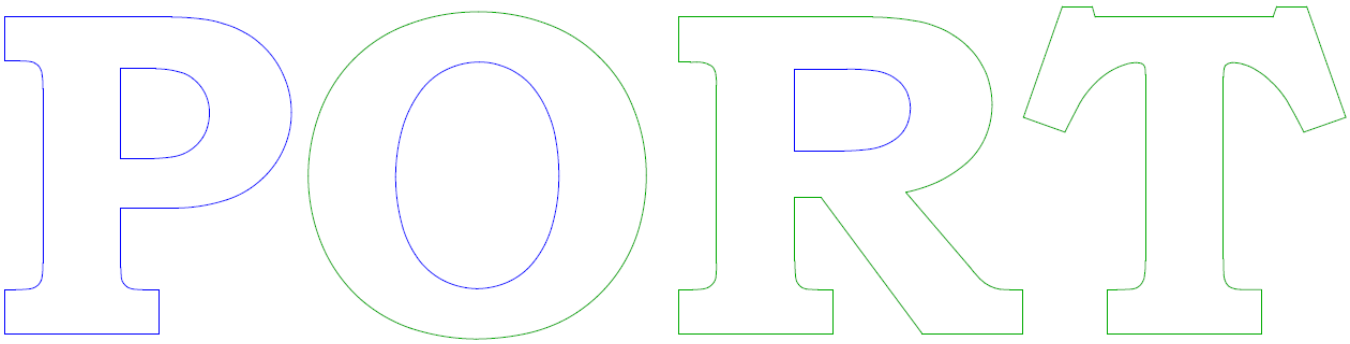
6. IMPORT & EXPORT NEWS

As with every version, particular attention has been paid to improving import speeds and curve quality. In V15, DXF, DWG and PDF benefit from faster data processing and improved curve quality, thanks to our new library of import filters, with which even more entities can be imported and recognized by the software.

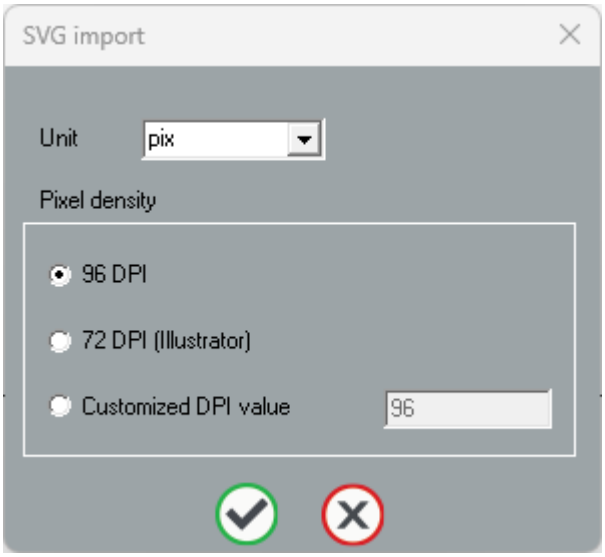
PDF export quality has also been significantly improved: arcs and splines are no longer segmented.

V14:

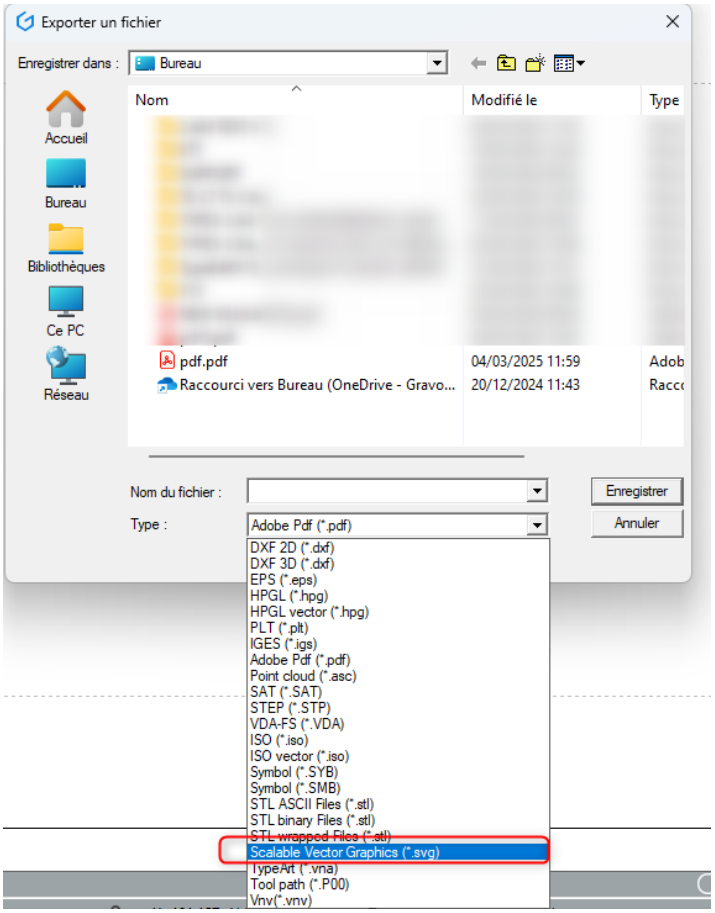
V15:



For the SVG import format, a new window prompts you to fill in the file's source for a correct dimensional ratio:

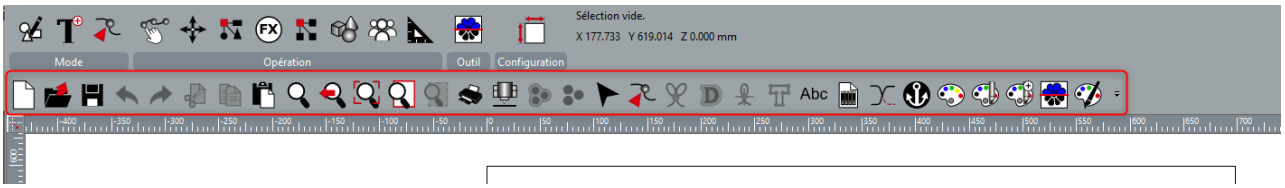


It is now also possible to ***export the *.SVG (Scalable Vector Graphics)*** format with its color attributes. This is a reference format that is ubiquitous in graphics circles, particularly for Web applications displaying vectors quickly and without distortion.

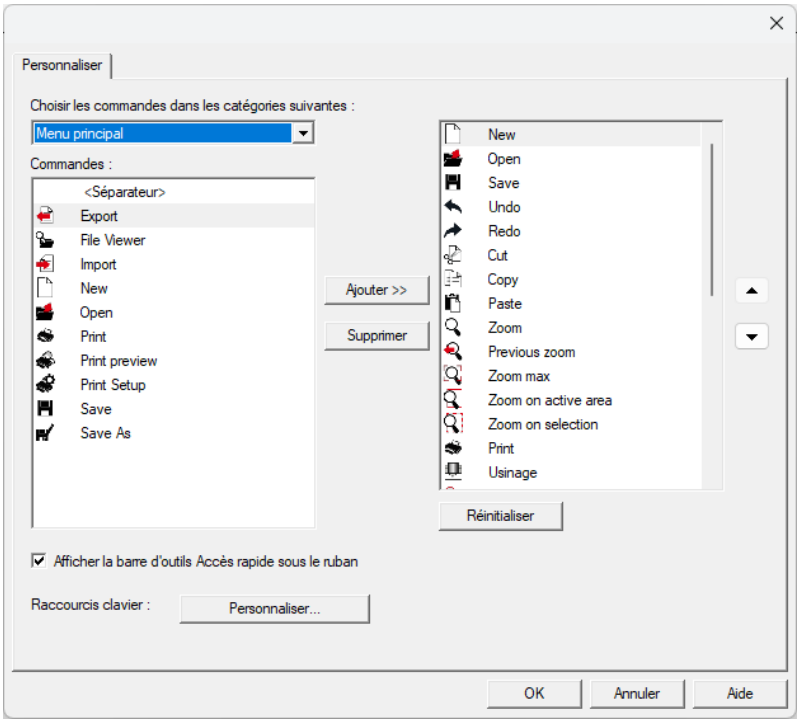


NOTE: SVG is a "dimensionless" format. This means that when you import SVGs, the dimensions may change from one program to another. Depending on the source, you may need to assign a scale factor to obtain the correct dimensions.

7. IMPROVEMENT: QUICK ACCESS BAR



In previous versions, to customize the quick access bar, you had to go through this window.



In V15, the process has become simpler. Select a function or palette (if it's not active, you probably need to select curves), then drag and drop it onto the quick access bar. It's that simple. The mouse changes shape. You can also rearrange the icons in the Quick Access Bar by moving them (select the icon in the Quick Access Bar, drag and drop to the desired location). It's quicker and more intuitive.