

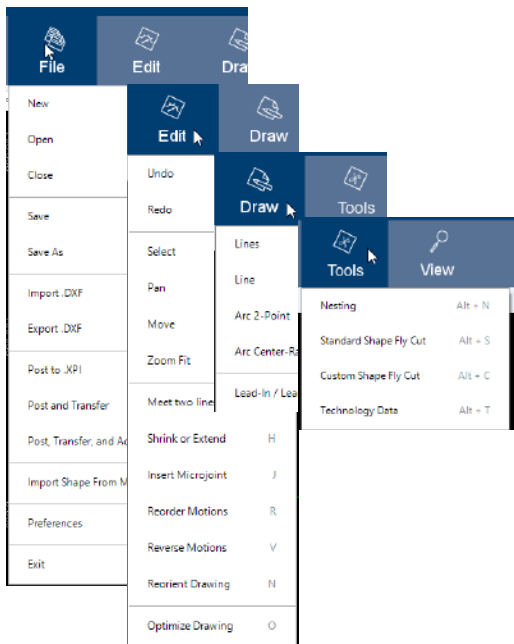
NUMcad 2D Drawing Tool Overview



NUMcad makes 2D cut designs simple to produce and integrates with other NUM devices: all while keeping the users specific conditions in mind!

NUMcad: User Friendly Interface

The Windows-based process is extremely user-friendly and mimics other CAD systems.

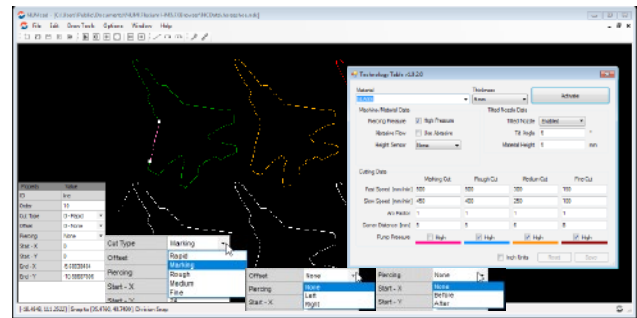


With an interface similar to ones from other CAD designing platforms, NUMcad is easy to pick up by someone with minimal experience.

Simple drawing tools like lines, line, Arc 2P, and Arc Center-Radius plus edit tools like meet two lines, shrink or extend, and even inserting a micro-joint allow for the user to fully customized and modify a shape.

NUMcad's creation was made with the intention that the user might already have a CAD file that they would want to modify. NUMcad allows many AutoCad DXF files to be imported and modified. If the user does not have a DXF file but has created the shape on the machine itself, NUMcad allows this shape to be imported as well.

When importing a DXF file to NUMcad one can expect to modify individual segments in the shape. The material that will be used in the production can be specified in the technology table for an accurate representation.



Cut Type

Each segment can be set to a certain cut type for the user's desired finish. The cut types are specified as rapid, marking, rough, medium, and fine. The properties associated with the cut type are pulled from the Technology Table.

Offset

The Offset describes what side of the cutting direction the nozzle will be on, for an example; assume the direction of the cut is up. If the Tilted Nozzle feature was enabled in the settings, then the nozzle head will roll in the direction specified by the offset.

Micro-joints

Micro-joints may be placed in the drawing to quickly turn on and off the cutting to create a temporary joint. This makes sure the part does not bend or turn as one side of it is cut. These joints can be easily broken afterward.

Piercing

A machine might need to move closer to the object to pierce through initially; therefore, NUMcad will give each segment the option to account for material piercing before or after the movement.

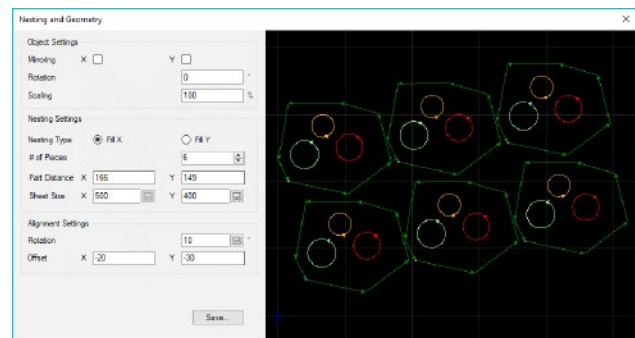
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Features



NUMcad Nesting

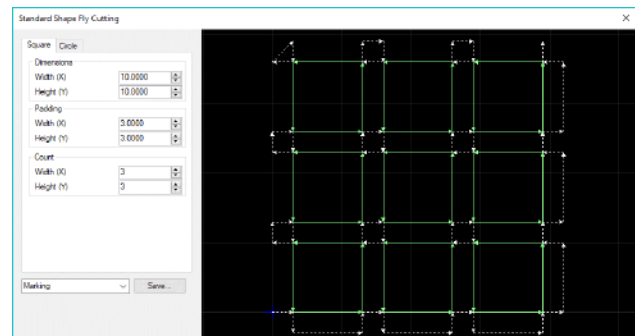
Nesting gives the user the option to create complex paths containing the same pattern. With settings like nesting type, number of pieces, sheet size, and scaling, the user can create a path that is sized and optimized to their liking. The added alignment settings allows the shapes to be rotated and offset for the minimization and optimization of uncut space – that could turn into scrap.



NUMcad Standard Fly Cutting

The right shows the settings for standard shape fly cutting. Giving the user the ability to choose between squares or circles. Therefore, saving the user time on cutting times, as the time spent not cutting is reduced when fly cutting is applied.

It is important to note that all cut lines and paths are modifiable even after fly cutting or nesting has been applied to a drawing.



NUMcad Custom Fly Cutting

NUMcad's fly cutting is not only reserved for standard shapes. Custom fly cutting is also an option where NUMcad will automatically reassign order and direction of motion to produce the most efficient tools path with complex shapes. These fly cuts are chosen by matching parallel cutting lines.

It is also possible to design a custom fly cutting machine path, by changing the line numbers and setting the Z move between cuts to "No Move".



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G-Code Generation



Shapes or patterns that have been drawn or imported – via DXF – can be converted into an executable G-Code file. This file can then be transferred and–or activated into the machine

Post Settings

NUMcad's G-code post settings allow the user to manipulate settings on how the file will be exported and how the CNC path should be generated.

Linear Feed Interpolation (FLIN)

Enabling this option will break up line segments (linear and arc moves) into three segments as defined by the corner distance in the technology table. If the line segment is shorter than the corner distance, then the segment is not broken up and the lowest feedrate will be assigned to that segment.

Optimize Before Posting

Will optimize the drawing before outputting the post processor. The optimization will join nearby points according to the Optimize Accuracy setting.

Z Move Between Cuts

This option pertains to how NUMcad handles discontinuous cuts with successive cut orders. The available options are:

Smart

The machine will disable the cut, move Z up, then move to the next point, move Z down, and re-enable the cut before continuing.

No Z Move

The post processor will not add any Z movements in between the discontinuous movements

Triangle Jump

The post processor will insert triangle jump (G100) commands between discontinuous movements

Square Jump

The post processor will insert square jump (G101) commands between discontinuous movements.

Frog Jump

The post processor will insert frog jump (G102) commands between discontinuous movements

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