

New in cncKad Version 15

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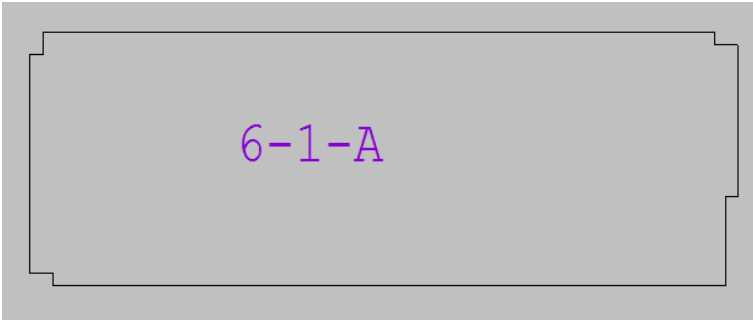
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1 New Import/Export Features

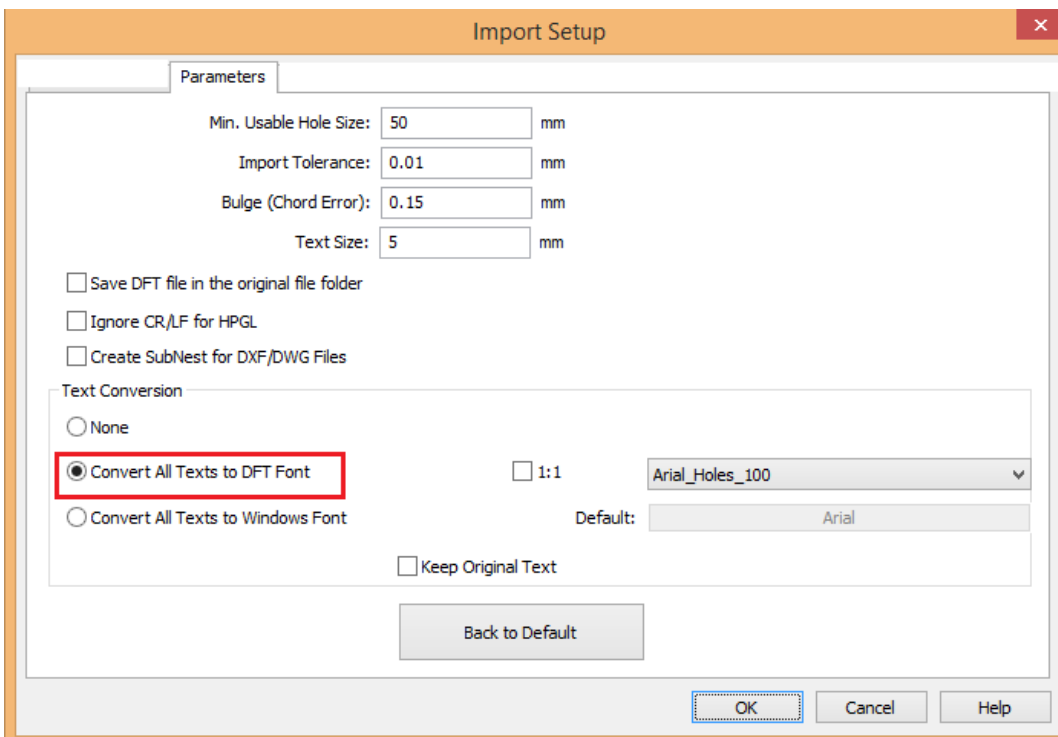
1.1 Import MText as DFT Geometry

cncKad now supports import of DXF files containing MText (where several paragraphs of text can be treated as a single text object) based on user defined font files (SHX extension). The text is completely imported as solid white geometry.

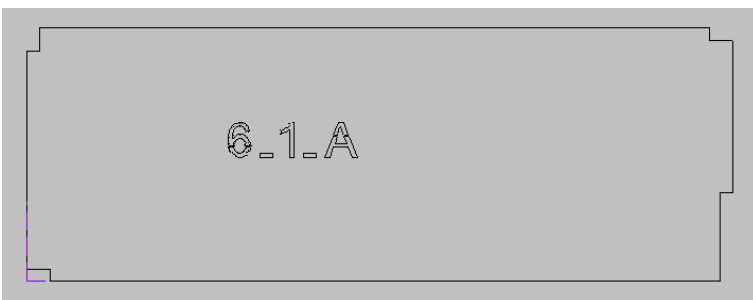
This is the original MText text:



When you import the file via the **File** menu => **Import** => **Setup** button, in the **Parameters** tab you can set **Convert All Texts to DFT Font**:



The text is imported as regular geometric DFT text:

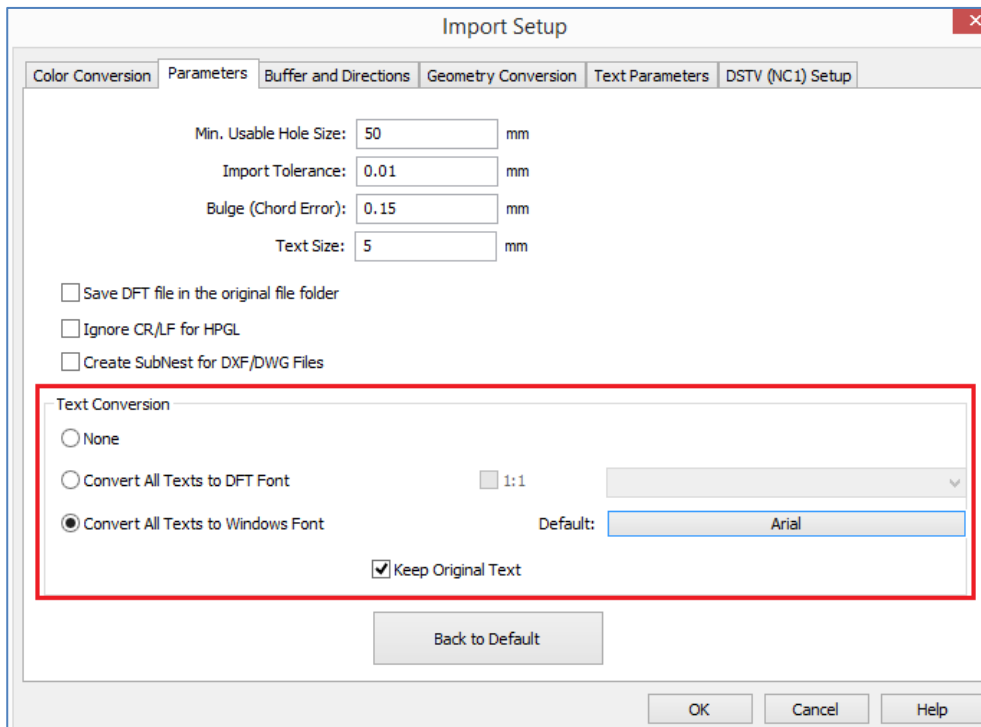


1.2 Convert Imported Text to Windows Font Geometry

When you import a DXF file into *cncKad* or *AutoNest*, you can convert the text to Windows font geometry:

- In *cncKad*, the path is via the **File** menu => **Import** => **Setup** button.
- In *AutoNest*, the path is via the **Part** menu => **Qty. Order** => **Import Setup** button (or via the **File** menu => **Save** => **New** => **Import Setup** button).

In the **Parameters** tab => **Text Conversion** section, specify **Convert All Text to Windows Font**, and select a default font from the **Default** dropdown list:



If you check **Keep Original Text**, then *cncKad* also displays the original text.

If the imported text comes with its own Windows font definition, then *cncKad* retains that definition and does not use the default Windows font.

1.3 Filter Imported Files

True for *cncKad* and *AutoNest*.

When you browse for files in the **Import File** dialog box*, you can reduce the list of displayed files:

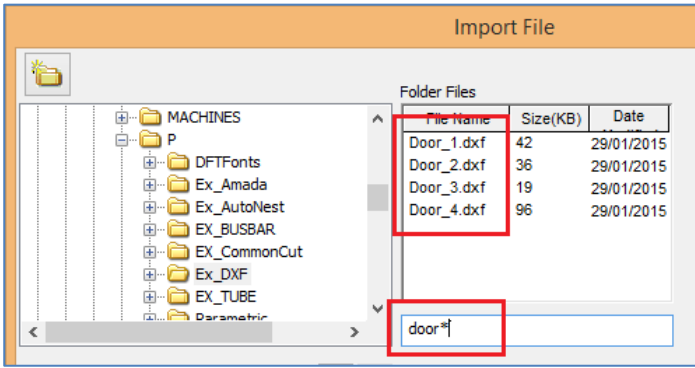
- Type the character string for which you are searching.
- Add a question mark (?) to indicate that there can be any character in that position. (Add two question marks for two characters, etc.)
- Add an asterisk (*) when you do not know the length of the string.
- For more details on the use of wildcards in regular expressions, search on the Internet.

*To navigate to the **Import File** dialog box:

- In *cncKad*: **File** => **Import**.
- In *AutoNest*: **Part** => **Qty. Order**.

For example, to see only the files that start with the text “door”, type **door*** in the file editing field (in the **Folder Files** section).

This picture shows the results of the filtering:



1.4 Import Filter Editor

You can now modify and merge existing filters. Following are examples of how to use these features.

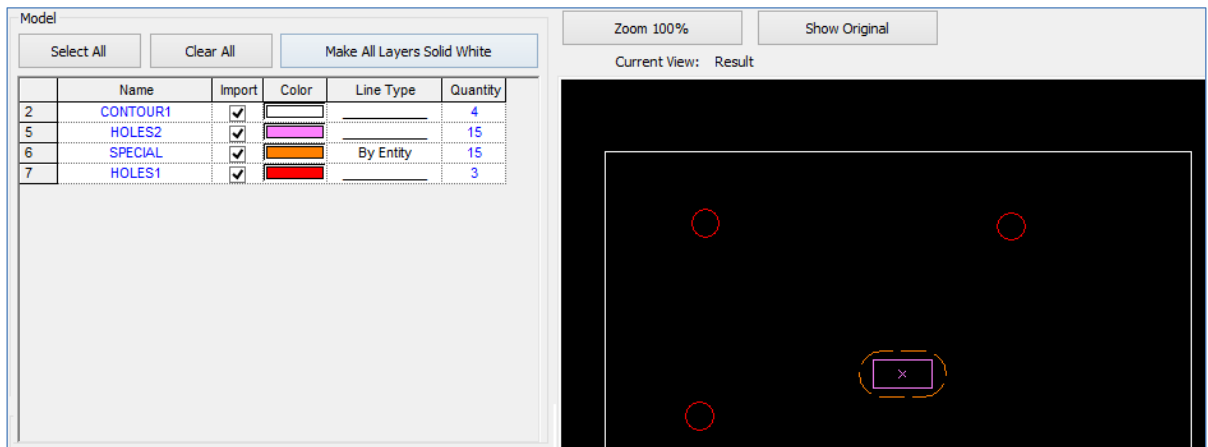
1.4.1 Create a Filter

- 🔍 This section explains how to set up the example.

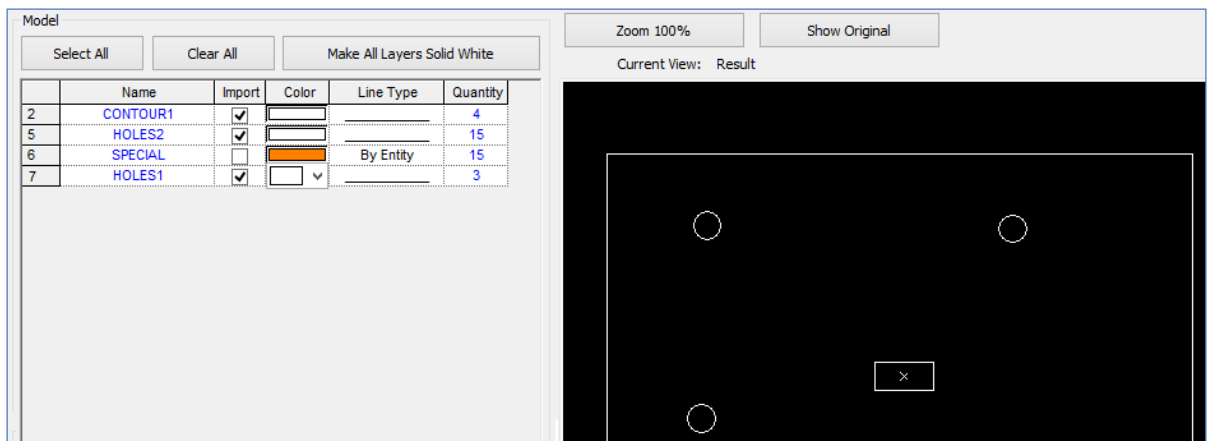
To set up a filter:

1. In the **File** menu => **Import**, select a DXF file with layers and click **OK**.
- 🔍 You could also import a DWG file.

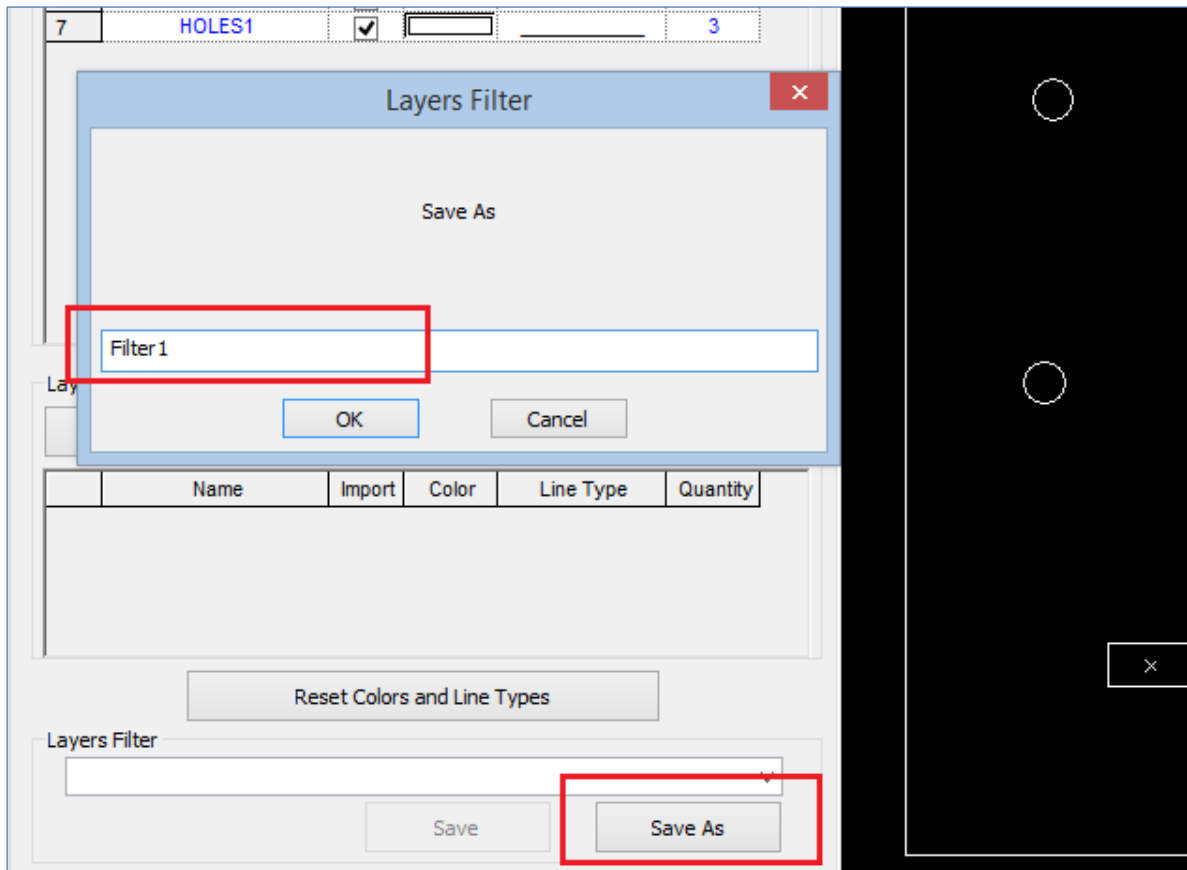
In the **Live Import** dialog box, the colors look like this:



2. Configure the layers with colors and line types as shown:



3. Click the **Save As** button and type the name **Filter 1**:



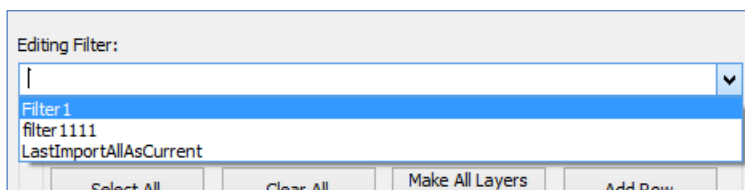
4. Click **OK**. In the **Live Import** dialog box, click **Cancel**.

1.4.2 Modify the Filter

Modify the existing filter to suit a newly loaded DXF/DWG file with layers that are similar but not identical to the first file's layers.

To modify the filter:

1. In the **File** menu => **Import**, select a DXF file with layers and click **Setup** button.
2. In the **Import Setup** dialog box, click the **Edit Layers Filter** button.
3. In the **Edit Layers Filter** dialog box, in the **Editing Filter** dropdown menu, select **Filter 1**:



4. Click the **Add Row** button. In the table, add two rows as shown, so that **CONTOUR2** changes to white and **7** is hidden:

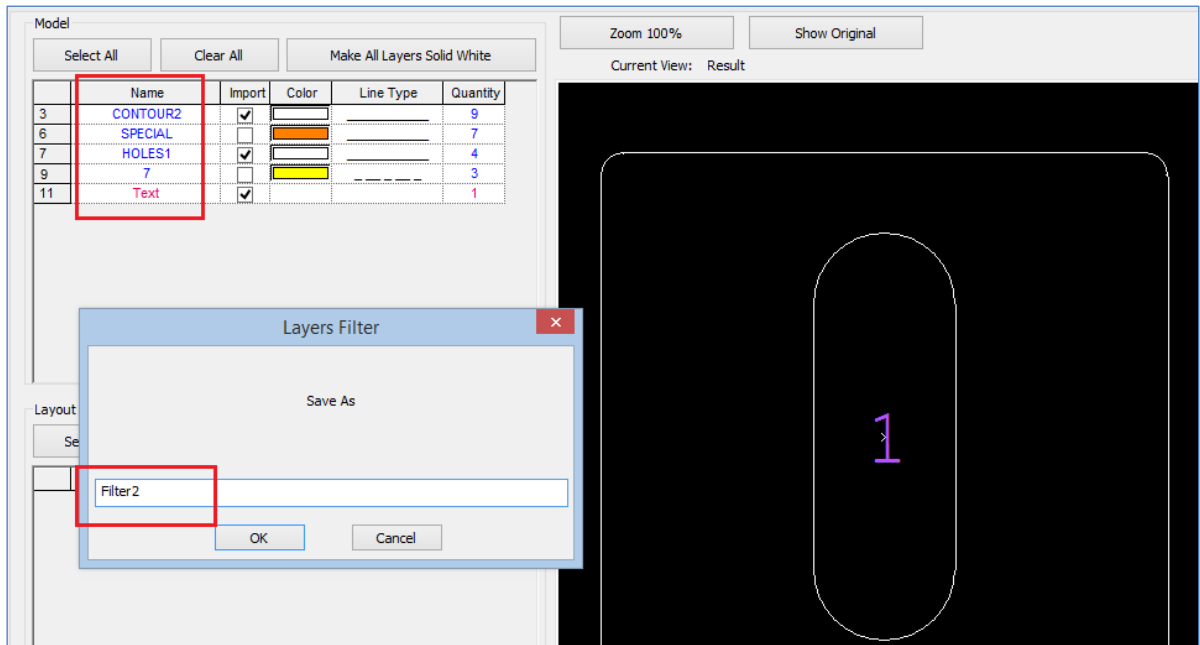
	Name	Import	Color	Line Type
1	CONTOUR1	<input checked="" type="checkbox"/>	<input type="text"/>	<input type="text"/>
2	HOLE2	<input checked="" type="checkbox"/>	<input type="text"/>	<input type="text"/>
3	SPECIAL	<input type="checkbox"/>	<input type="text"/>	By Entity
4	HOLE1	<input checked="" type="checkbox"/>	<input type="text"/>	<input type="text"/>
5	CONTOUR2	<input checked="" type="checkbox"/>	<input type="text"/>	By Entity
6	7	<input type="checkbox"/>	By Entity	By Entity

5. Click **Save** and confirm.
6. Click **OK** and confirm.

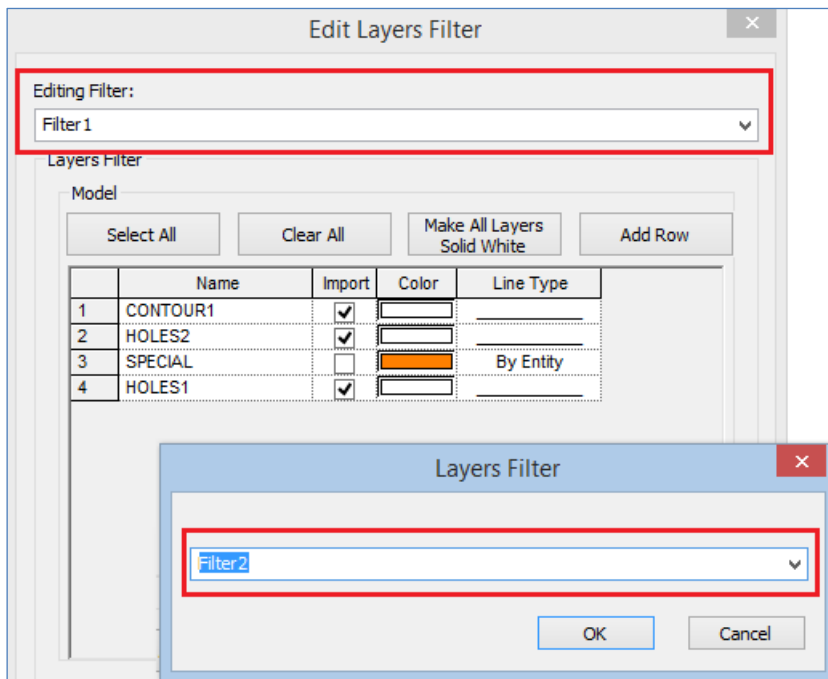
1.4.3 Merge Two Filters

To merge two filters:

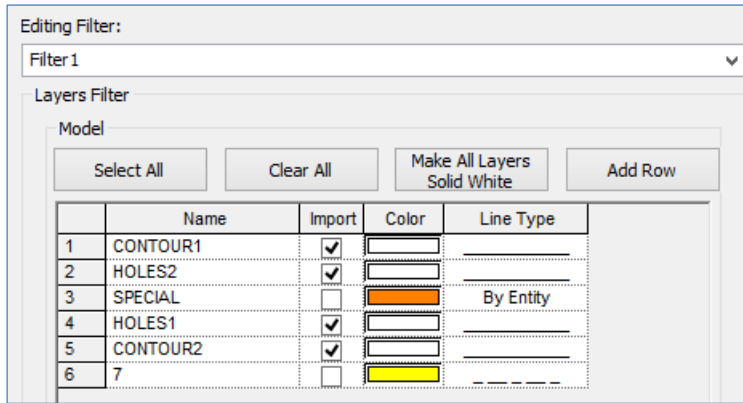
1. Create a new filter by following the steps in section 1.4.1 and importing a different DXF file with layers. Call it **Filter 2**:



2. In the **Edit Layers Filter** dialog box, in the **Editing Filter** field, select the first filter (**Filter 1**) from the dropdown list.
3. Click the **Merge Another Filter** button. In the **Layers Filter** dialog box, select **Filter 2** from the dropdown list:



4. Click **OK**. *cncKad* merges all the rows:



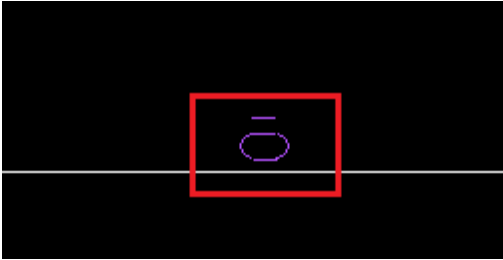
1.5 Change Color/Line Type

From now on, when you import DXF or DWG files and you want to change the drawing to solid white, this change applies only to closed contours.

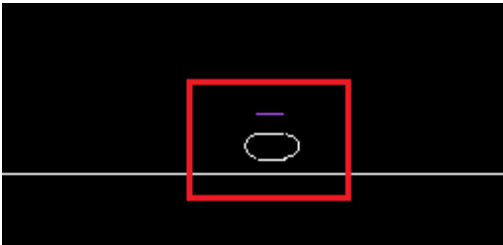
This means that open contours that are colored or dashed do not change to solid white.

To navigate to this option, go to the **File** menu => **Import** => **Color Conversion** tab => **Convert All to Solid White**.

This example shows a circle and a line in an imported drawing:



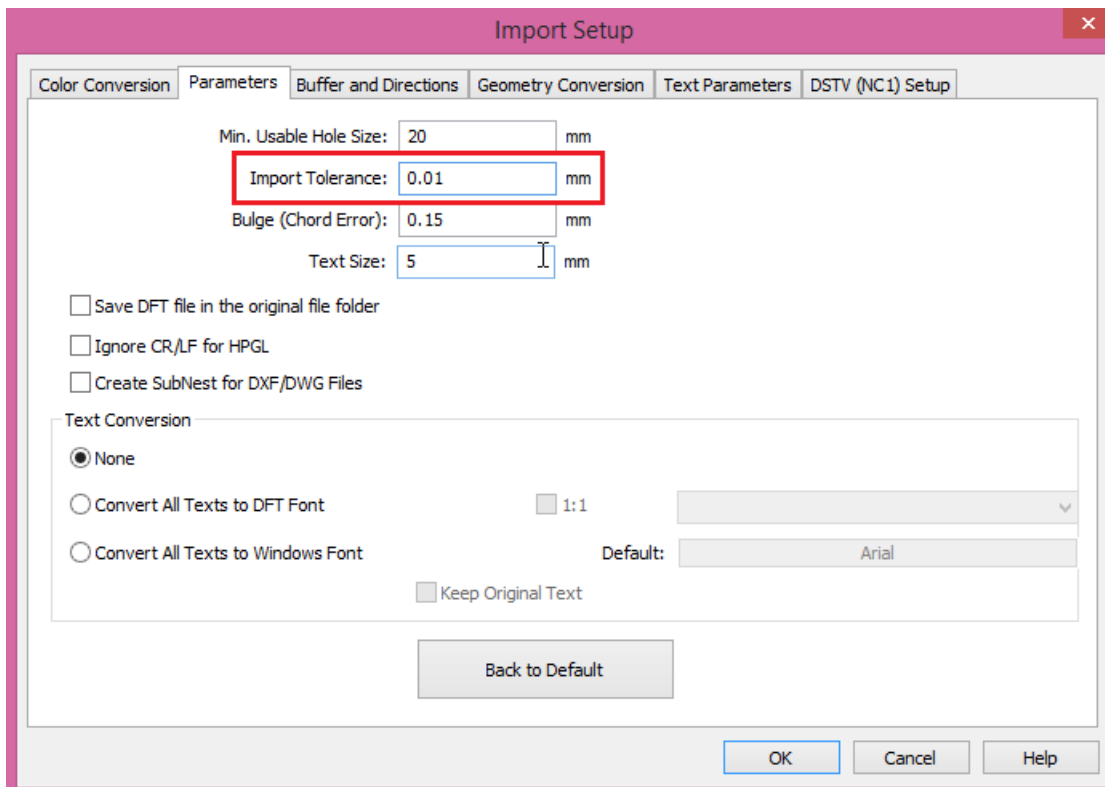
See that the circle changes to white but the line remains purple:



1.6 Circles Smaller than Tolerance Are Not Deleted

When importing a file into *cncKad*, anything smaller than the defined import tolerance is ignored. From now on, the *cncKad* import does not ignore circles, even when they are smaller than the tolerance size.

The tolerance size is defined in the **File** menu => **Import**, in the **Import Files** dialog box, click the **Setup** button. In the **Import Setup** dialog box => **Parameters** tab, the **Import Tolerance** field:



The screenshot shows the 'Import Setup' dialog box with the 'Parameters' tab selected. The 'Import Tolerance' field is highlighted with a red box. The dialog box contains several input fields and checkboxes for configuring import settings.

Import Setup

Color Conversion | **Parameters** | Buffer and Directions | Geometry Conversion | Text Parameters | DSTV (NC1) Setup

Min. Usable Hole Size: 20 mm

Import Tolerance: 0.01 mm

Bulge (Chord Error): 0.15 mm

Text Size: 5 mm

Save DFT file in the original file folder

Ignore CR/LF for HPGL

Create SubNest for DXF/DWG Files

Text Conversion

None

Convert All Texts to DFT Font 1:1 [Dropdown]

Convert All Texts to Windows Font Default: Arial

Keep Original Text

Back to Default

OK Cancel Help

2 New Punch Features

2.1 Improved Control of MicroJoint Tool on Nibbled Entity

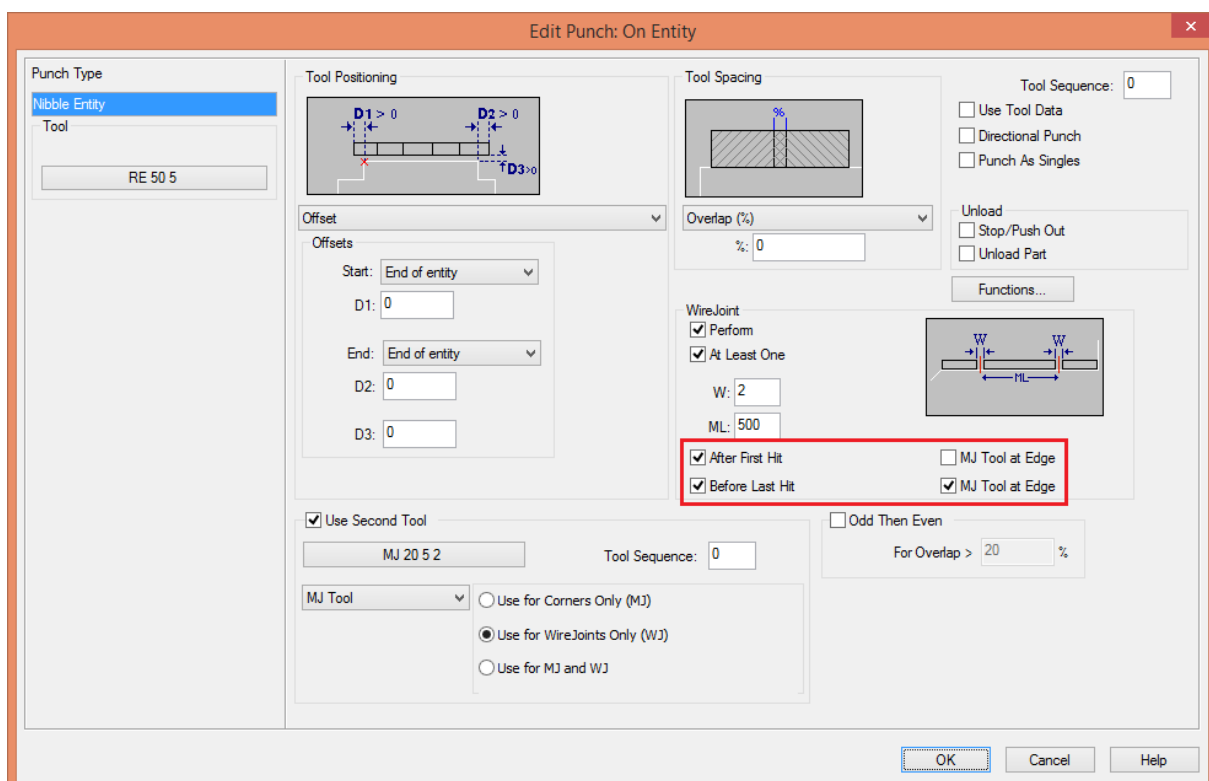
You can select the way MicroJoint (MJ) tools are placed on your part on the nibbled entity:

- As the first or the last hit
- As the second or second-to-last hit

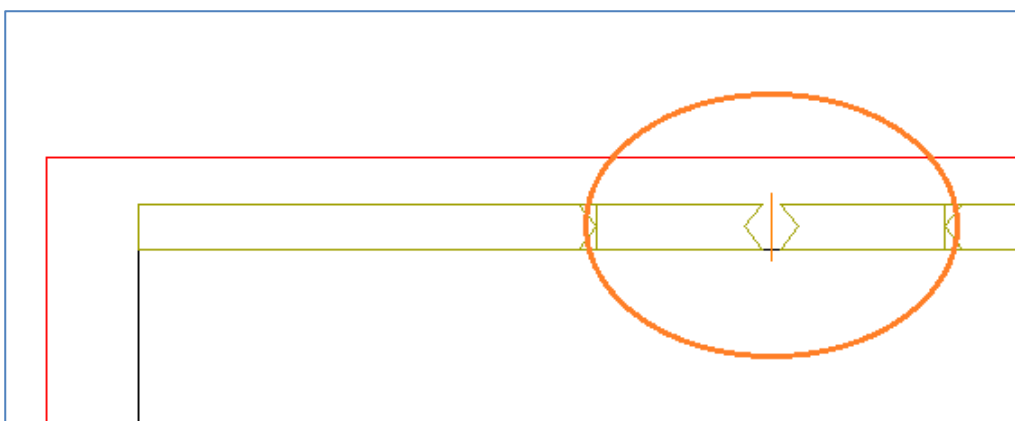
Open the **Edit Punch** dialog box by clicking the **CAM** menu => **Edit CAM**. (You can also do this in the **Add Punch** dialog box by clicking **CAM** => **Punch CAM** => **Add Punch**.)

When you check the **MJ Tool at Edge** option, the MicroJoint hit is first and/or last.

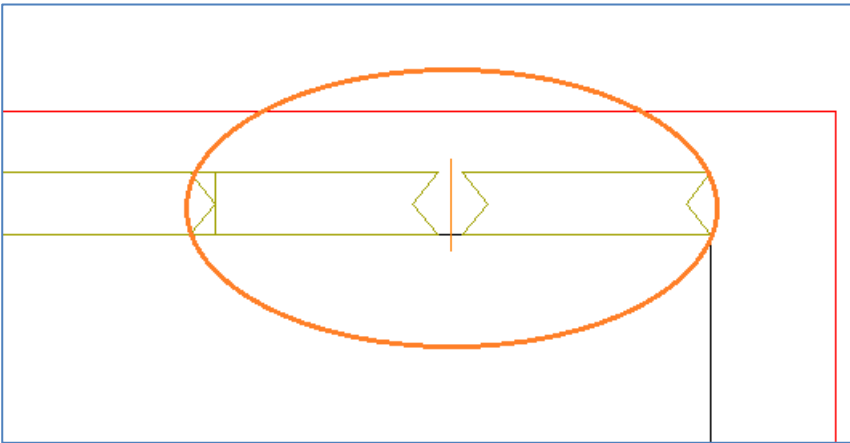
In this example, **After First Hit** is selected and **MJ Tool at Edge** is not selected, so the first hit of the MJ tool is the second hit:



This is the result. You can see the first hit is followed by a MJ tool hit:



This is the result for the last MJ, when **Before Last Hit** is selected with **MJ Tool at Edge**. You can see that the MJ tool hit is the last punch hit:



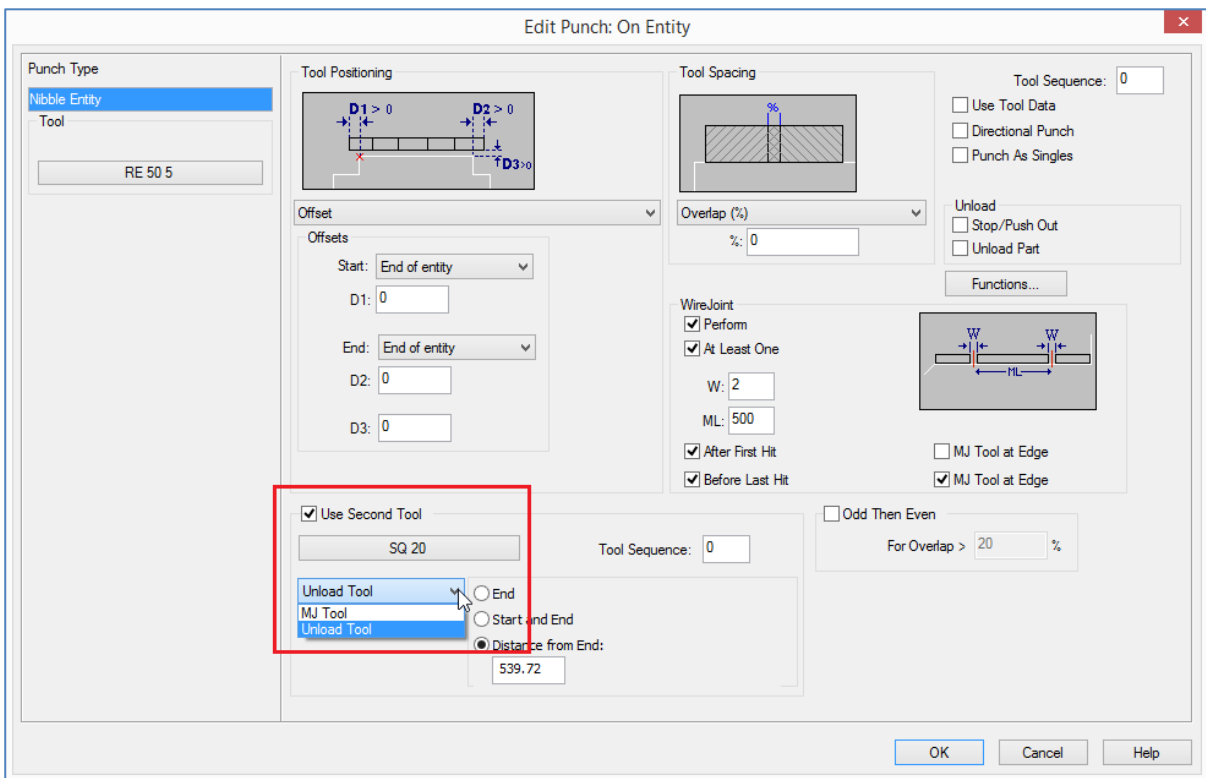
2.2 Select Unload Tool as Second Tool

When you want to unload a part using a different tool than the one used to nibble an entity, you can define a second tool as the unload tool.

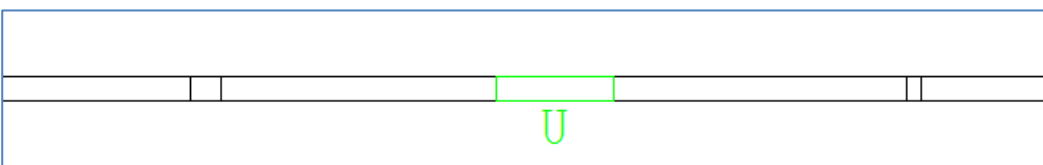
There are two ways to get to this option:

- In the **CAM** menu => **Punch CAM** => **Add Punch**, in the **Add Punch** dialog box.
- In the **CAM** menu => **Edit CAM**, in the **Edit Punch** dialog box.

Select **Use Second Tool**, and select **Unload Tool** from the dropdown list:



You can then see the unload tool (indicated by a green **U**) next to the original tool on your entity, as shown in the following example:

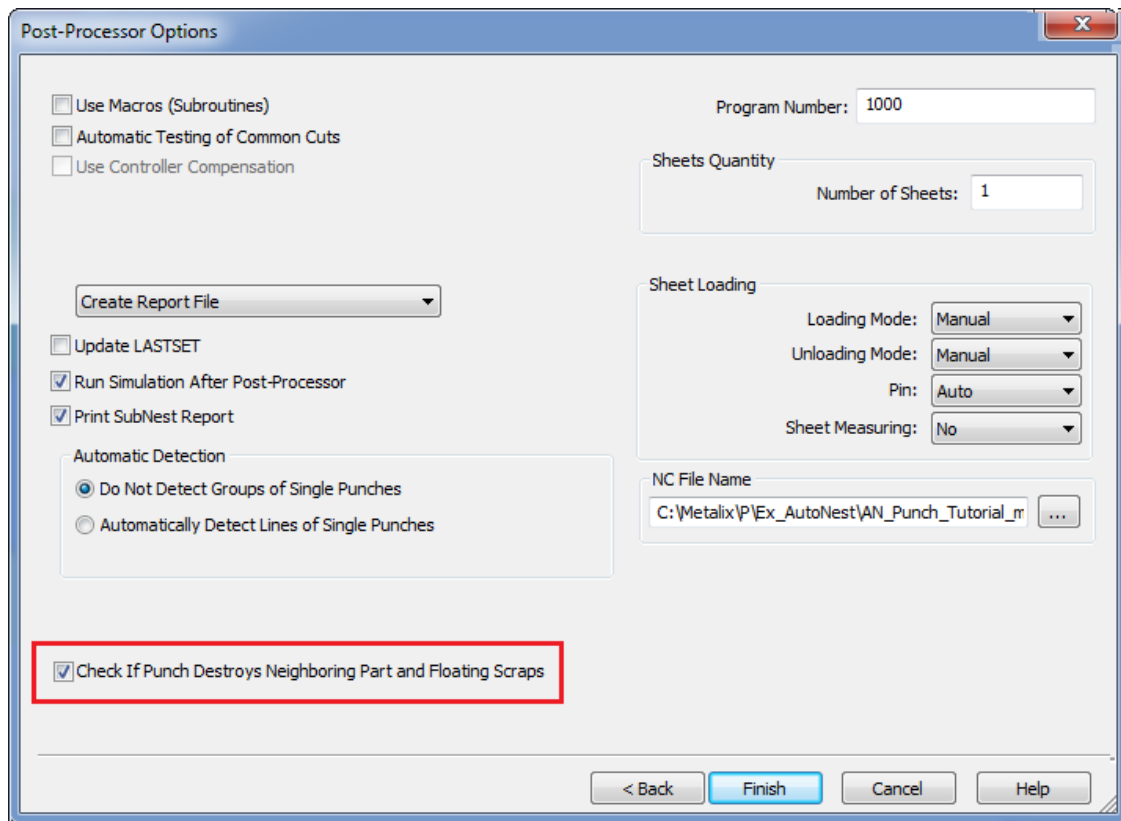


- You can now set default settings for the second tool (whether MJ or unload) in the machine's .MDL file. See details in the **examp.mdl** file in **C:\Metalix\MACHINES**.

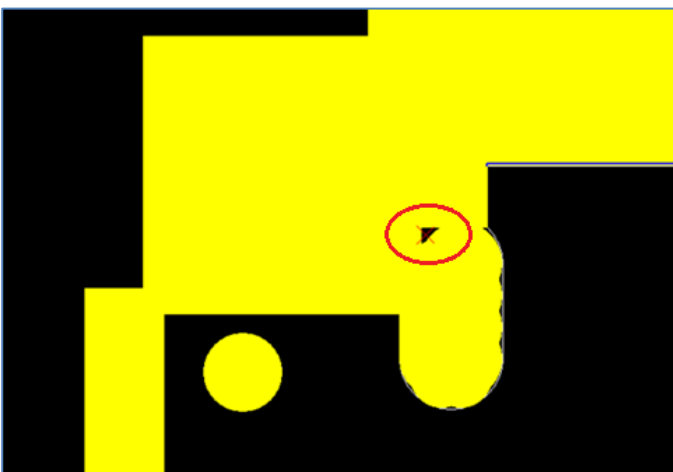
2.3 Identify Floating Scraps

cncKad now can identify and warn when there are floating scraps. This is done:

- Automatically at the end of AutoPunch
- Manually, in the **Post-Processor Options** dialog box (in the **Settings** menu => **Machine Settings, Post-Processor** tab), when you select **Check If Punch Destroys Neighboring Part and Floating Scraps**:



You can see the floating scrap in the middle of the picture:

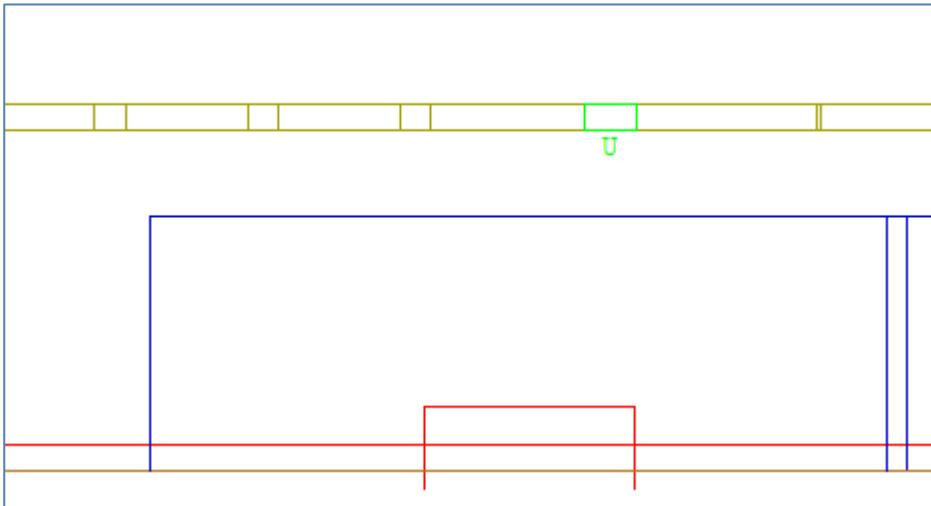


To stop checking for floating scraps, press the **Esc** key.

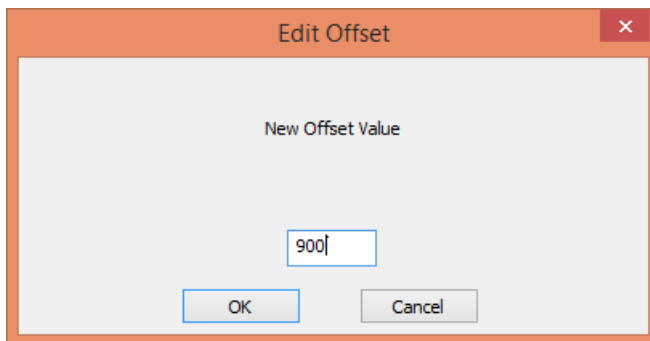
2.4 Move Pickup Position of Second Tool

You can change the position where the second (unload) tool is placed.

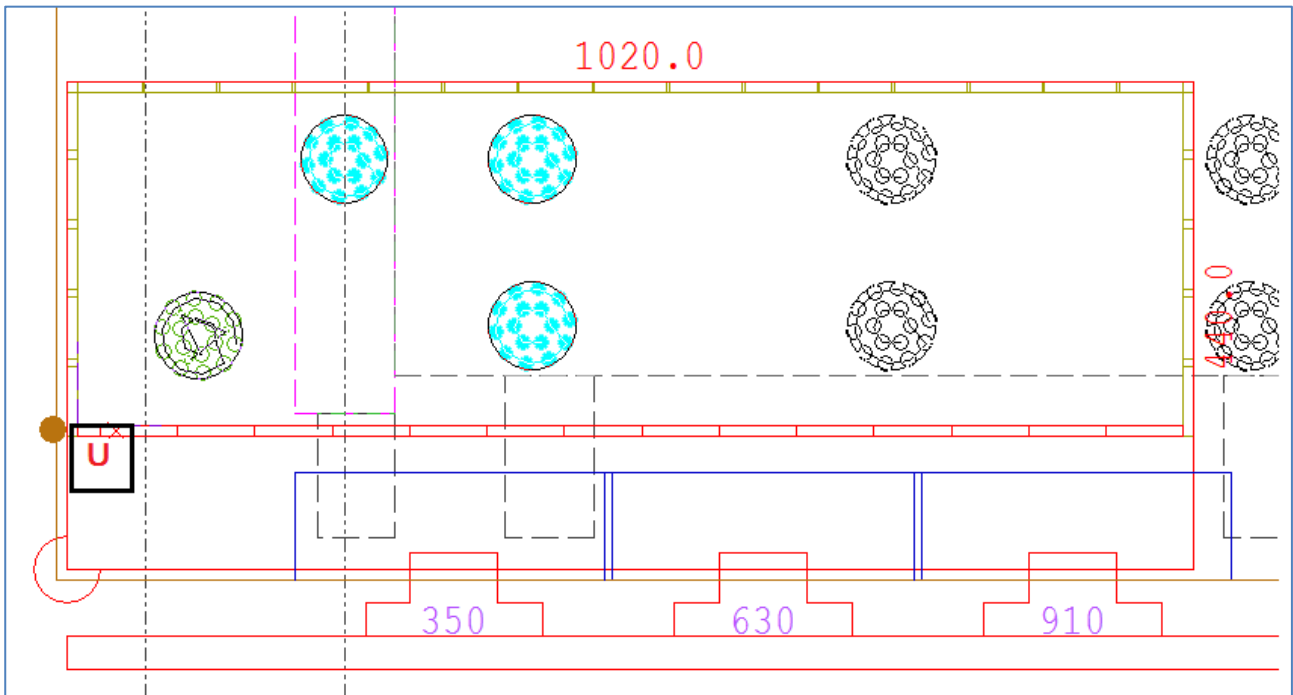
In the picture below, the second tool is in the default position (which is the offset of the unloader from the last hit with the nibble tool), marked by a **U**.



To move the unload tool, click the second tool above the green **U** (unload indicator). It turns white. To place the unload tool on the part, drag the unload indicator to the new position. The **Edit Offset** dialog box opens. You can confirm the value or define a new one:

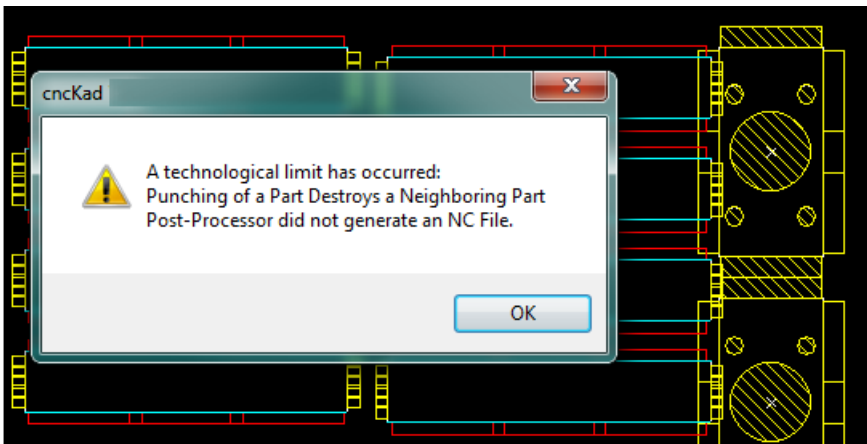


The unload arrangement appears again so you can select new active cups:



2.5 Warn If Collision in Nest

You can ask **cncKad** to issue a warning and not generate NC if a punch destroys a neighboring part:

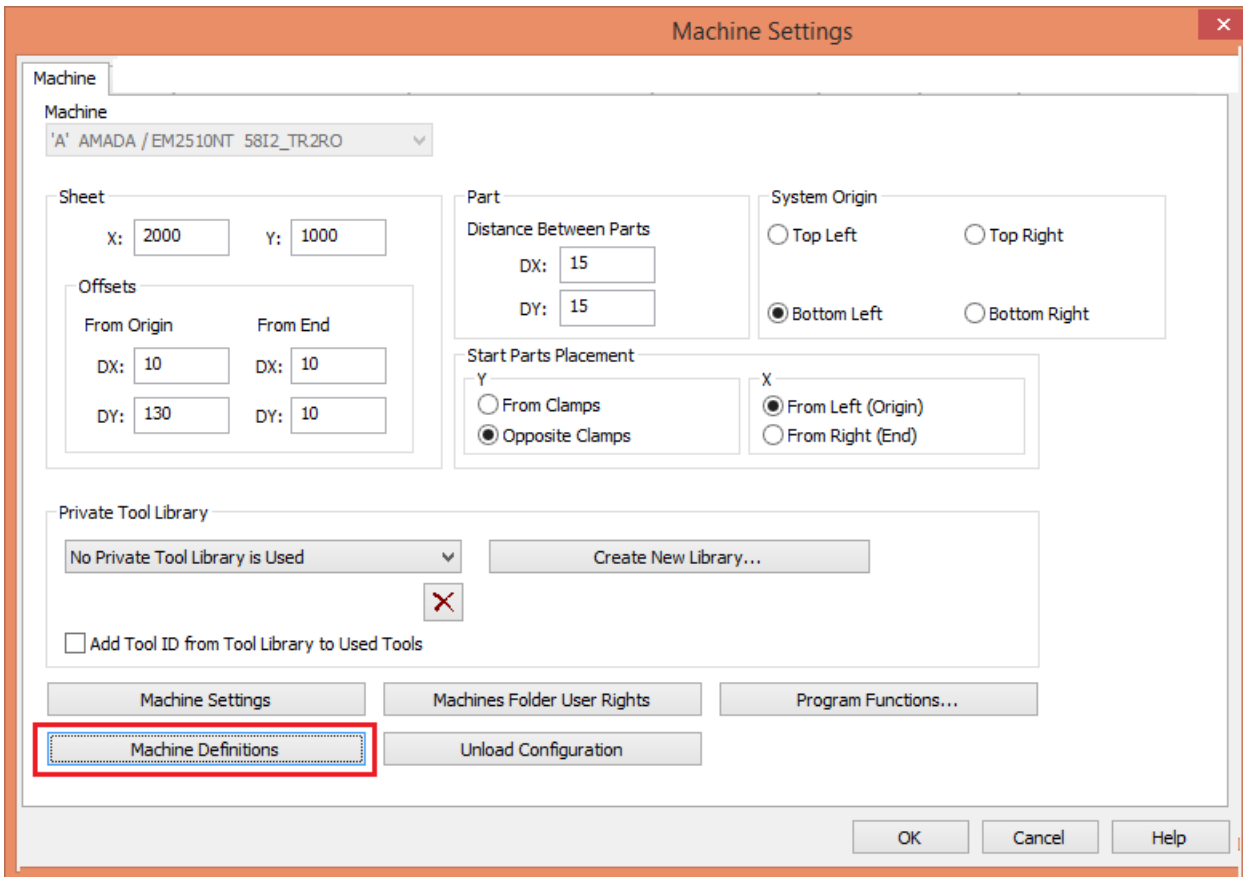


Set this option in the **Settings** menu => **Machine Settings** => **Post-Processor Options** tab, by selecting **Check If Punch Destroys Neighboring Part** and **Floating Scraps**.

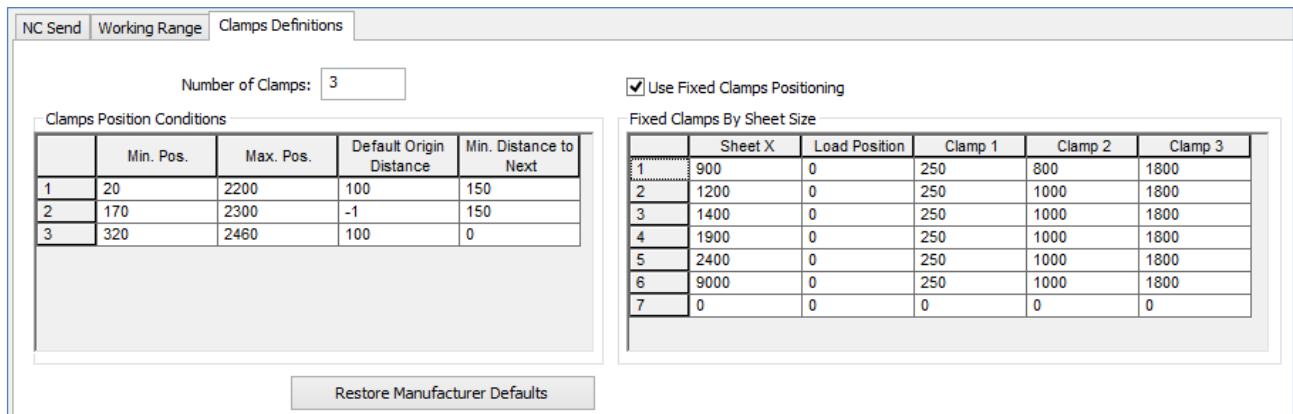
2.6 Change NC File Saves, Working Range, and Clamp Definitions

If the machine model allows it, you can save a copy of the NC file to an additional location, and modify the default working range and clamp positions. These parameters apply to the active machine.

In the **Settings** menu => **Machine Settings** => **Machine** tab, click the **Machine Definitions** button:



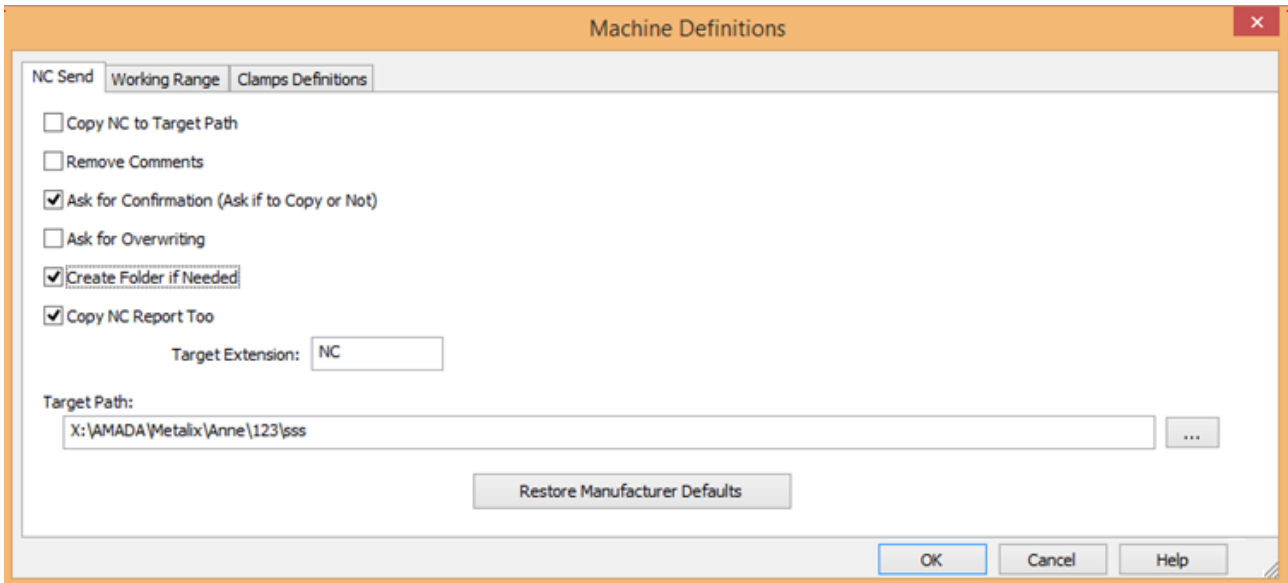
The **Machine Definitions** dialog box opens with several tabs:



2.6.1 NC Send Tab

You can configure how **cncKad** handles the generation of NC files. For example, you can make a copy of the NC file on a network drive with the extension of your choice. (By default, the NC file is saved locally, with the .?NC extension.)

Click the **NC Send** tab:



Options:

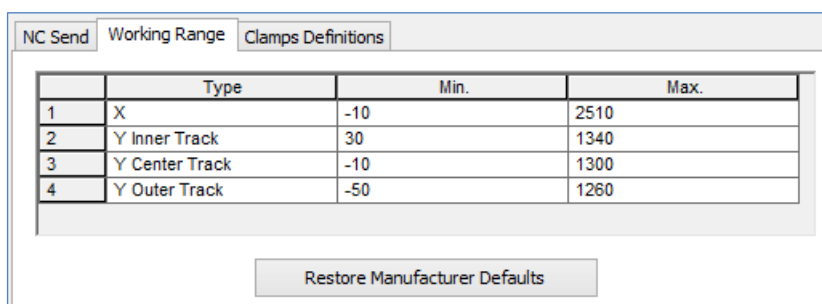
- **Copy NC to Target Path** – Creates an additional copy of the NC in the location defined in [Target Path](#). When you check this option, the other options in this tab become relevant.
- **Remove Comments** – Strips comments from this copy of the NC.
- **Ask for Confirmation** – Requests you to confirm that you do want to create a copy of the NC.
- **Ask for Overwriting** – Requests you to confirm that you want to overwrite the existing copy, if it exists.
- **Create Folder if Needed** – If the folder named in the [Target Path](#) does not exist, *cncKad* creates it.
- **Copy NC Report Too** – Creates a copy of the report as well as a copy of the NC.
- **Target Extension** – Gives the NC file name this extension. By default, **NC**.
- **Target Path** – The path to where the NC is copied.

To cancel any changes you have made, click the **Restore Manufacturer Defaults** button.

2.6.2 Working Range Tab

You can set the working range of the machine. Your changes are stored in the MDLX file.

Click the **Working Range** tab:



To cancel any changes you have made, click the **Restore Manufacturer Defaults** button.

2.6.3 Clamps Definitions Tab

You can define the default settings and limitations for clamps for the current machine.

In the **Clamps Definitions** tab, this is what you can do:

- Change the number of clamps.
- Set the range of possible positions for each clamp in the **Clamps Position Conditions** table.
- Set the positions of each clamp, depending on the size of the sheet, in the **Fixed Clamps by Sheet Size** table.
- Restore the default positions by clicking the **Restore Manufacturer Defaults** button.

The **Fixed Clamps by Sheet Size** section is not visible if your machine does not support this option. If it does support this option, you should see the **Use Fixed Clamps Positioning** checkbox. Check it and type your settings in the table.

- These default settings provide the basis for the settings visible in the **CAM** menu => **Set Sheet and Clamps** => **Clamps** tab.

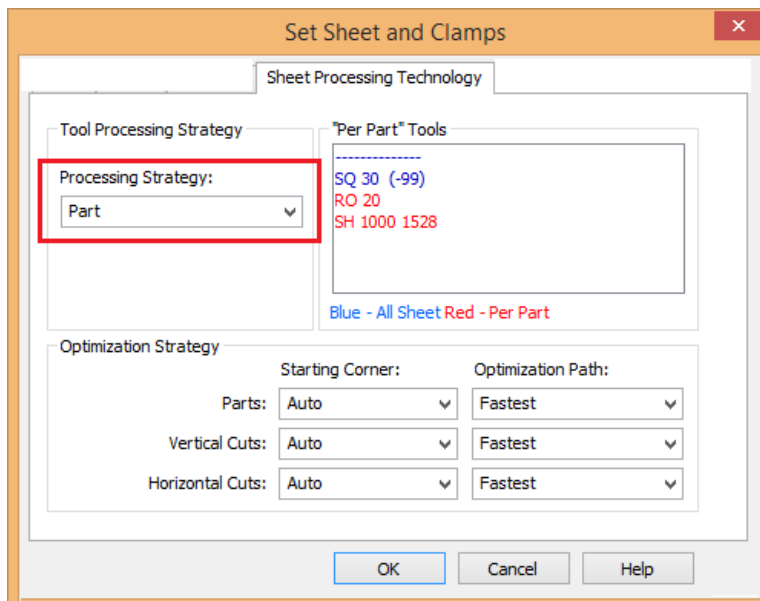
2.7 Shear: Support per Part

For shear machines.

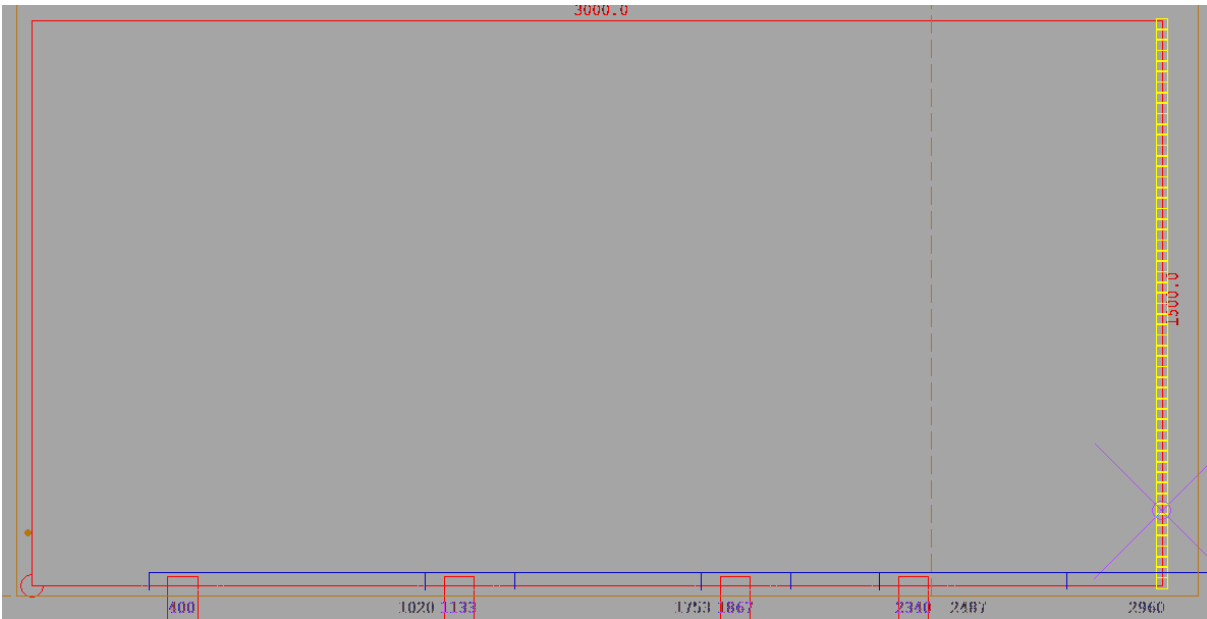
cncKad now supports punch-and-shear operations, per part. It punches and shears each part separately. It also shears the scraps that must be cut and removed before the next part can be sheared.

In the **Nest** menu => **Set Sheet and Clamps** => **Sheet Processing Technology** tab, define the **Processing Strategy** as **Part**.

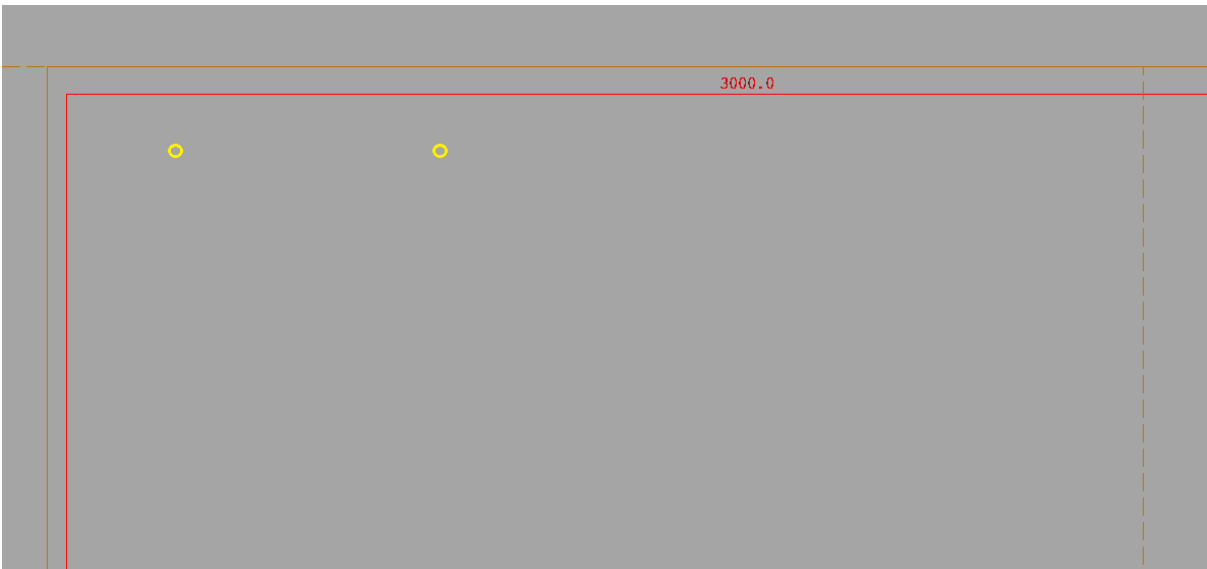
As shown in the example, blue tools apply to the whole sheet, and red tools only apply to the part:



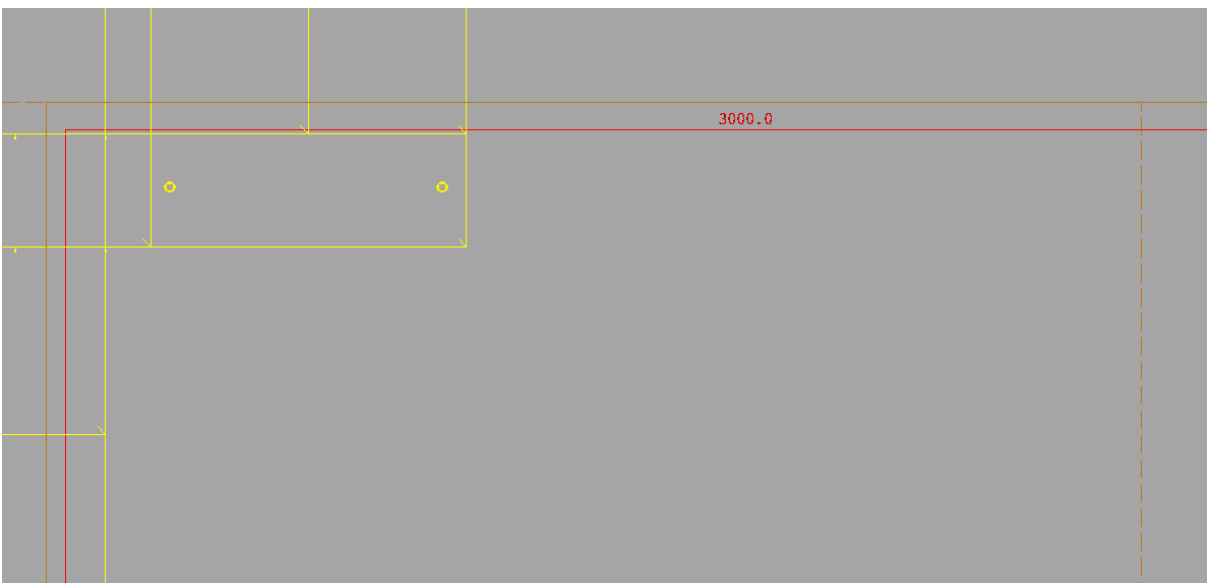
Here you can see the CAMs for the whole sheet:



See the punching of the first part in the simulation:

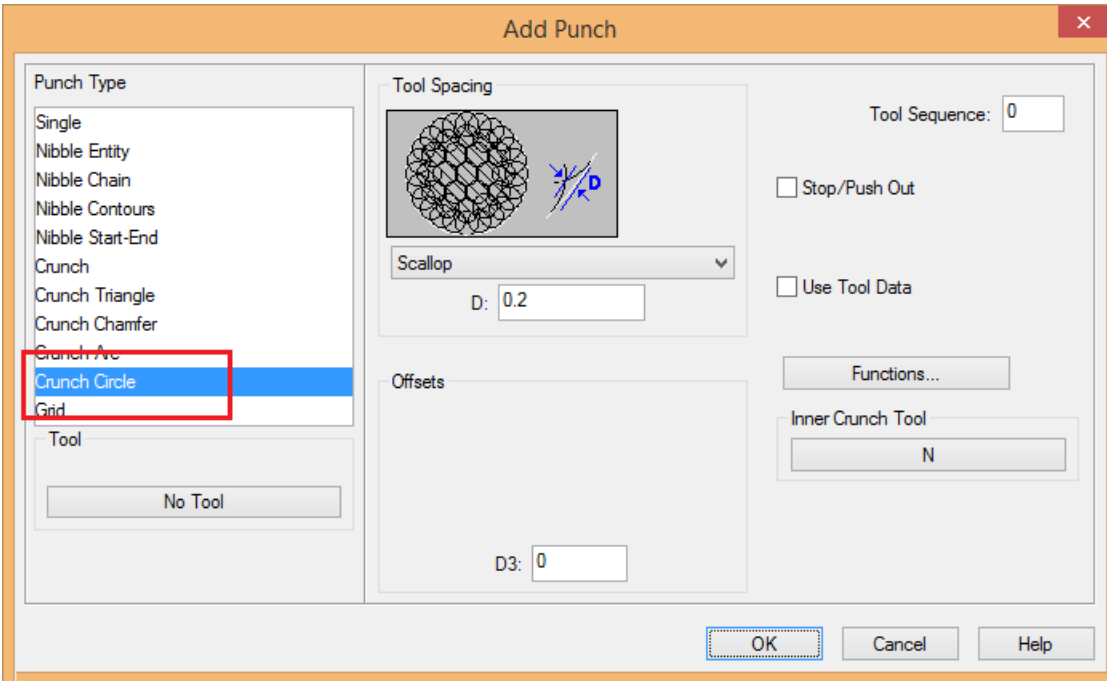


This is how the simulation looks after the shear of the first part:

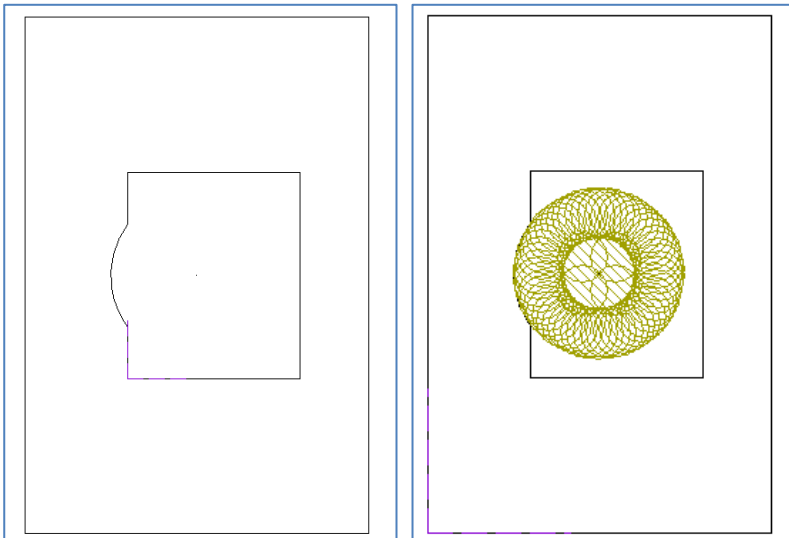


2.8 Crunch Arc Entity as a Whole Circle

You can now crunch an arc using a circular crunch. In the **Add Punch** dialog box, select a round punch tool:



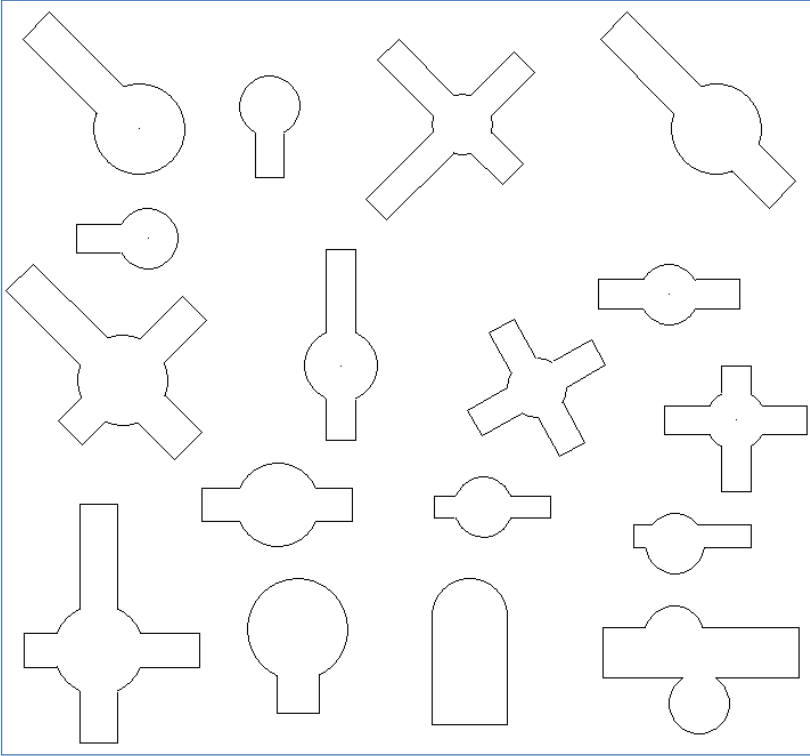
The pictures show an example of how arcs are crunched (before and after):



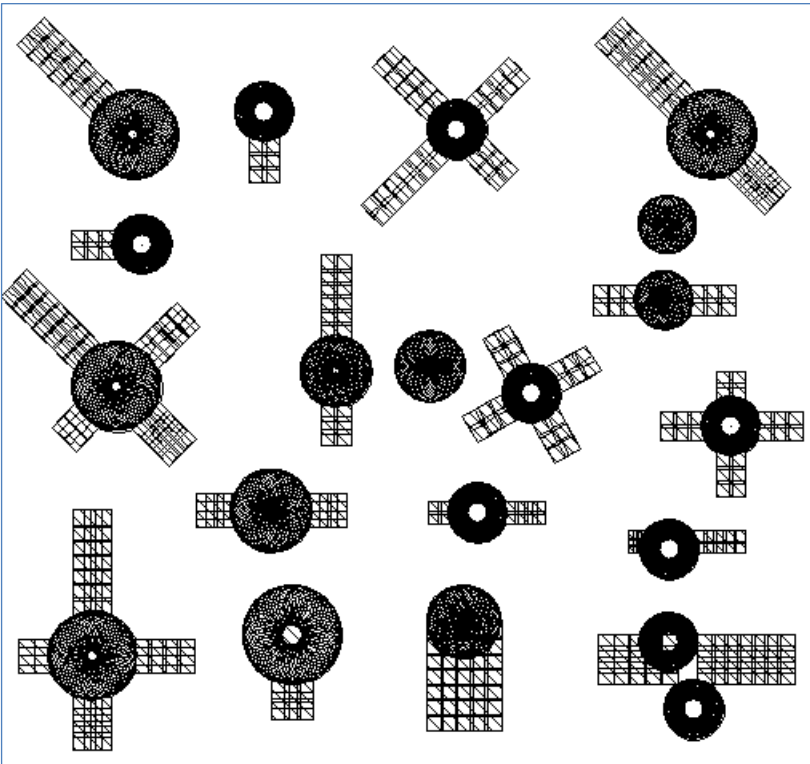
2.9 AutoPunch Circles with Rectangular Extensions

AutoPunch now supports shapes based on a circle with rectangular extensions.

Examples prior to processing:



Examples after processing:

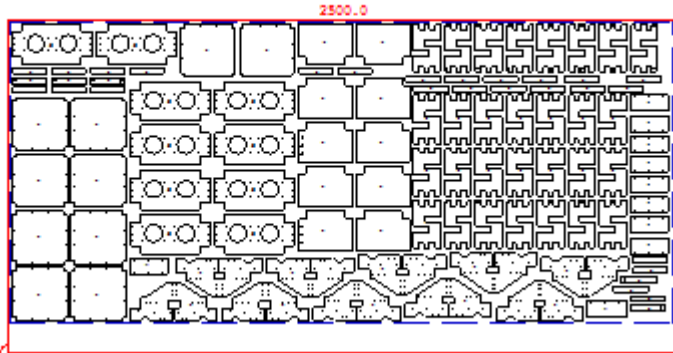


2.10 Tools Setup Shown in Reports

In *AutoNest*, there are two new punch reports:

- The SubNest report includes the tool changes (from the basic setup) in the turret that are required to finish processing the SubNest. In the **Settings** menu => **Report Settings** => **AutoNest Report Settings** tab => **SubNest Report** section, select **Use AutoNest DOC/TXT Report** and then select the **RPT_AN_SN_ENG_PUNCHTOOLS15.doc** template file:

File: C:\Metalix\PI\Ex_AutoNest\AN_Punch_Tutorial_mm\Ex1\setup report001.NST #1 of 1
 Date: Monday, July 27, 2015



Programmer:	Number:	
Order no.:	Machine model: EM2510NT	
Customer:	Drawing:	Version:

SHEET Number of Sheets: 1

Sheet size: 2500. X 1250.	Sheet weight: 24.38 kg
Material: Steel	Skeleton weight: 9.676 (KG)
Thickness: 1.0	Efficiency: 60.303 %

JOB TIME

Travel: 06:11	Tool change: 00:22	Punch: 08:55	Total: 00:12:19
---------------	--------------------	--------------	-----------------

Part name	DX	DY	Qty.
1 mm_AN_Punch_Tut1_01.dft	200	150	10
2 Mm_AN_Punch_Tut1_02.dft	300	150	10
3 Mm_AN_Punch_Tut1_03.dft	204.5	197.4	10
4 Mm_AN_Punch_Tut1_04.dft	100	180	29
5 Mm_AN_Punch_Tut1_05.dft	130	20	30
6 Mm_AN_Punch_Tut1_06.dft	145	60	10
7 mm_AN_Punch_Tut2_06.DFT	327	147	10

Turret Action Codes

1 - move tool
 2 - change tool
 3 - new tool

Tool type	Length	Width	Angle	Station no.	Turret action	Tool position in original setup
RO	5.00			304	1	102
RE	50.00	5.00	0.	219	3	
SQ	7.00		0.	220	2	
SQ	7.00		45.	138	3	

- The Order Report displays a full tools turret setup file of all the stations, regardless of whether they contain tools. In the **Settings** menu => **Report Settings** => **AutoNest Report Settings** tab => **Order Report** section, select the **RPT_AN_ALL_ENG_Portrait_04_PunchTools.doc** template file:

Order: demo06a_Punch.DSP				Date: Sunday, July 12, 2015, 13:38:49			
Programmer:		Machine: EM2510NT		Total number of sheets: 2		Total number of SubNests: 2	
Total placed parts: 148		Total ordered parts: 148		Notes:		Total time: 00:17:32 Efficiency: 38.06%	

SubNests in Order									
No.	Preview	Size X (mm)	Size Y (mm)	Material	Thk (mm)	Eff. %	Time per instance	Total time	Qty
1		2000	1000	Steel	1	54.821	00:11:39	00:11:39	1
2		2000	1000	Steel	1	21.291	00:05:53	00:05:53	1

Parts in SubNests							
No.	Part file name	Preview	Material	Thk. (mm)	Weight (KG)	Required qty.	Placed qty.
1	DemoPunch1.DFT		Steel	1	0.152	20	20
2	DemoPunch2.DFT		Steel	1	0.084	96	96
3	DemoPunch3.DFT		Steel	1	0.019	30	30

Part name	SubNest number	1	2
DemoPunch1		20	
DemoPunch2		62	36
DemoPunch3		15	15

Material Data				
Material	Thickness	Size X	Size Y	Number of sheets
Steel	1	2000	1000	2

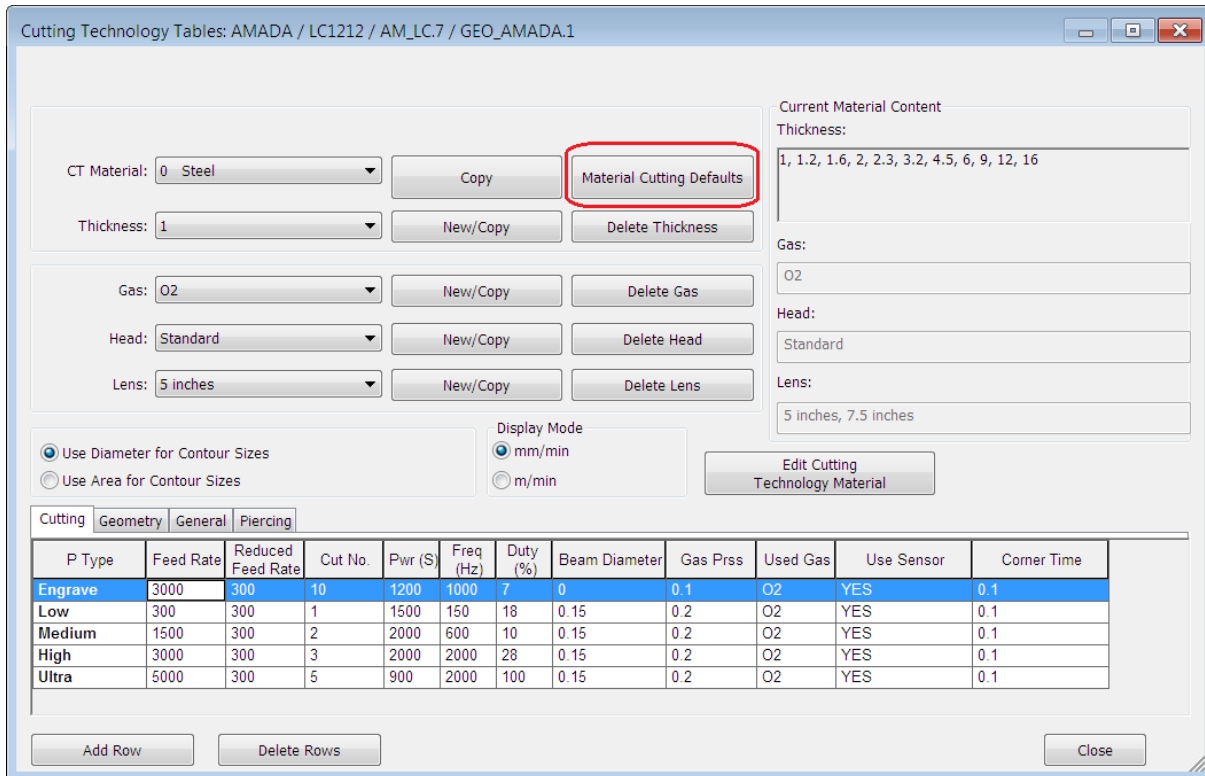
Pure Material Data						
Material	Thickness	Eff. %	Skeleton %	Part weight (KG)	Left weight (KG)	Total weight (KG)
Steel	1.00	38.06	61.94	11.873	19.327	31.2

SETUP LIST							
Station no.	Type	Tool preview	Length	Width	Angle	Die	Functions
201							
102	RE		10.00	5.00	90.	NONE	
203	RO		3.00			NONE	
304							
105	RE		25.00	5.00	0.	NONE	
306							
107							
208							
309							
210							
111							
212							
313							
114							
315							
116	RO		5.00			NONE	
217							
318							
219	RO		72.00			NONE	
220	RE		28.00	3.00	0.	NONE	

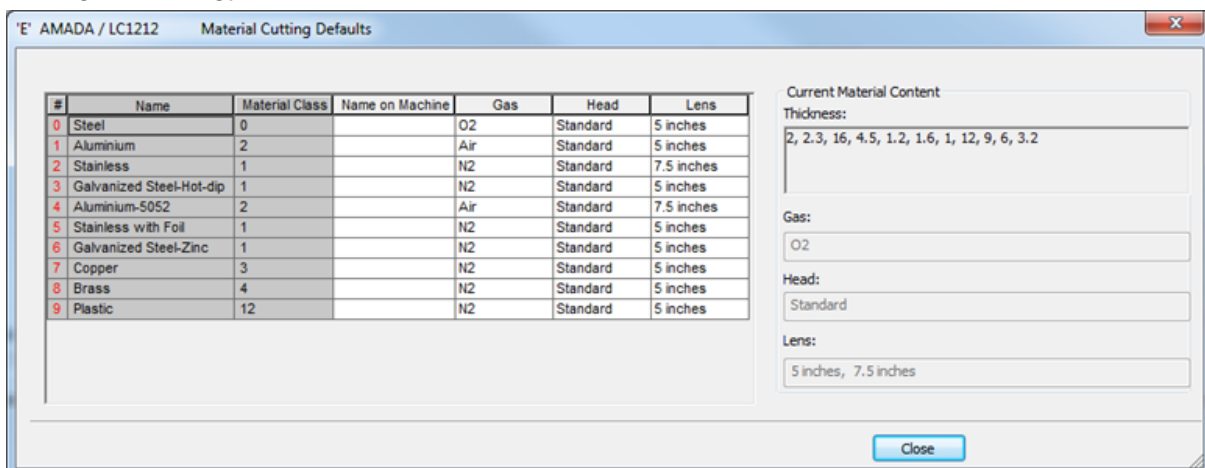
3 New Laser Features

3.1 Configure Material Cutting Defaults per Machine

cncKad supports a default setup of material cutting parameters for each machine separately. Open the **Cutting Technology Table** (by clicking the **CAM** menu => **Cutting Table**) and click the **Material Cutting Defaults** button:



The **Material Cutting Defaults** table contains default values for gas, head, and lens for each cutting technology material:



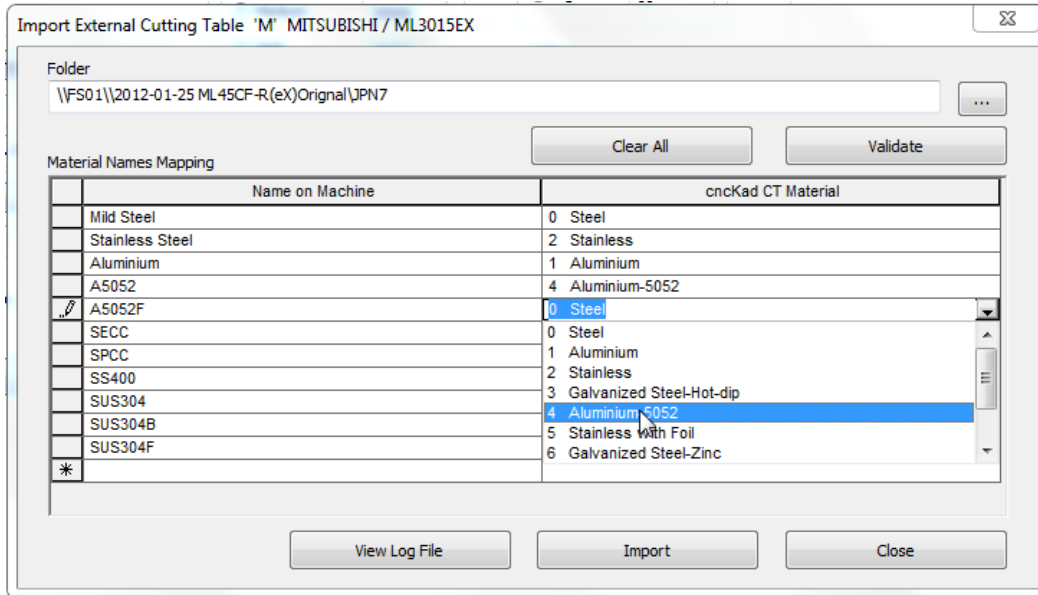
3.2 Import Machine Cutting Technology Tables

cncKad allows you to import cutting data from the machine environment in various file formats into the internal cutting technology tables.

 Relevant for Mitsubishi, Boschert, Bystronics, Durmazlar, and Prima laser machines.

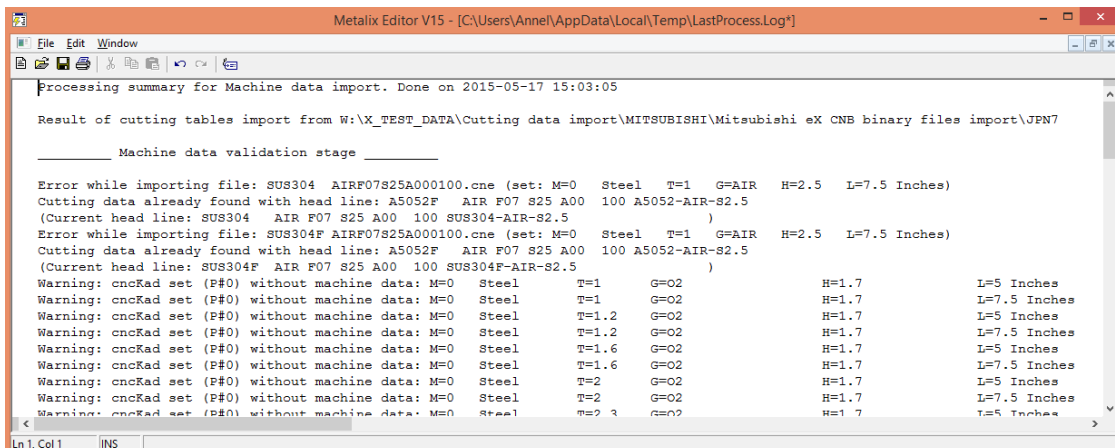
This is the typical procedure for importing a cutting technology table:

- In the **Settings** menu => **Machine Settings** => **Cutting Parameters** tab, click the **Import Cutting Tables** button. This is how the **Import External Cutting Table** dialog box might look:



In this table, map your machine material names with the **cncKad** cutting technology table material names.

- Click the browse button next to the **Folder** field.
- Navigate to the cutting data folder or file (depending on the machine/manufacturer type) to import and click **Open**.
- Click the **Validate** button. **cncKad** validates the cutting data and produces a full report of the validation results. It appends all the unrecognized material names into the **Material Names Mapping** table.
- View the created log file and set the appropriate mapping of all the new material entries (if any) that were created in the mapping table. This is done by clicking the dropdown lists in the **cncKad CT Material** (CT = Cutting Technology) column, next to the entries in **Name on Machine** column, and selecting the correct mappings.
- Click the **Validate** button again.
- Check that the validation process worked correctly by examining the log file: Click the **View Log File** button and look for problems and warnings:



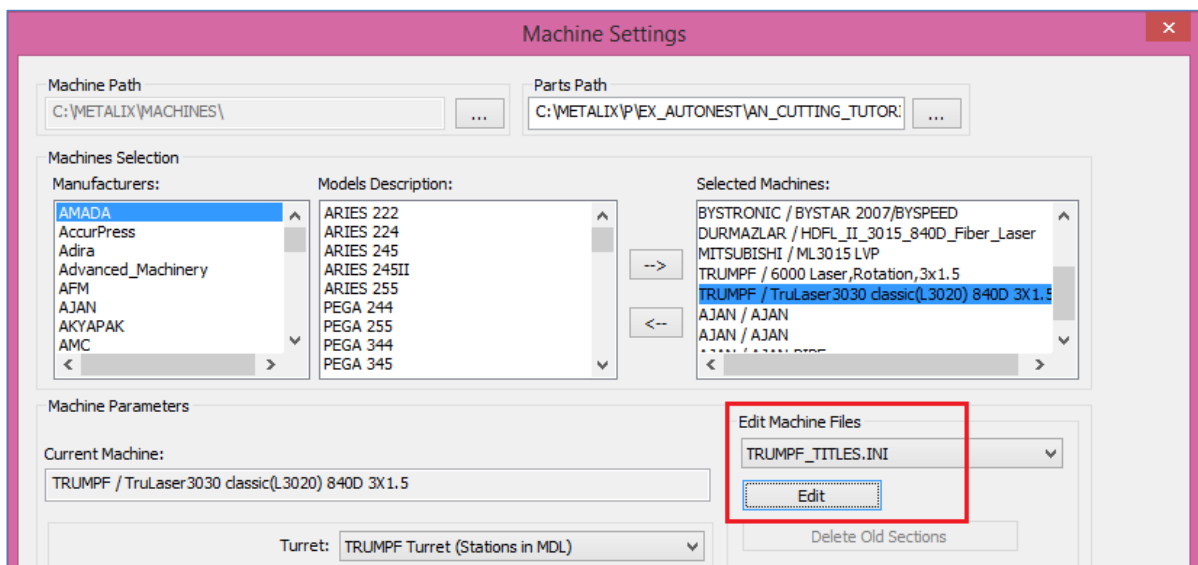
- Run the import process by pressing the **Import** button.

3.3 Support Dropdown Selection in Cutting Technology Tables

You can define some of the columns in the cutting technology table as dropdown lists. This allows the user to choose from the options in the dropdown list. This feature is only available for columns named Mode1 and Mode2 (visible in the INI file).

To configure a column as a dropdown list, edit the **TITLES.INI** file for your machine:

1. In the **Settings** menu => **Machine Settings** => **Machine** tab, click the **Machine Settings** button.
2. In the **Machine Settings** dialog box, from the **Edit Machine Files** dropdown list, select the *_**TITLES.INI** file.
3. Click the **Edit** button:



4. In the **[DropDownCutting]** section of the file, add the lines you need and save the file.

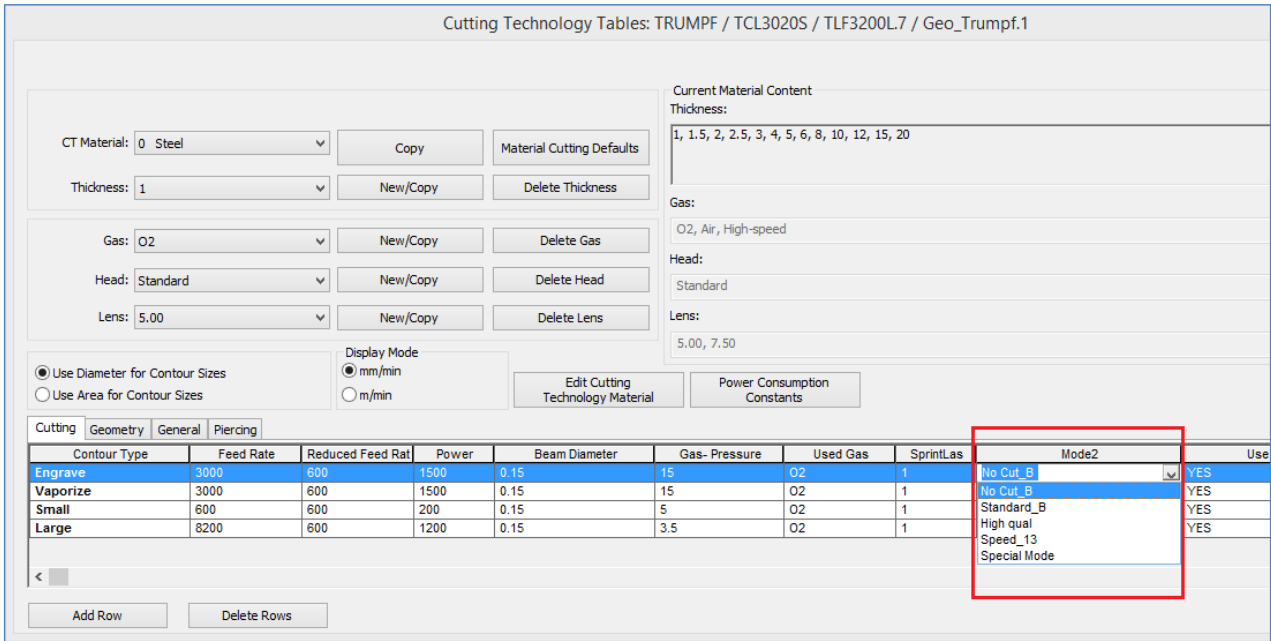
For example:

```
[DropDownCutting]
```

```
Mode1 = 0:0 1:1
```

```
Mode2 = 0:No Cut_B 1: Standard_B 2: High qual 13:Speed_13 4: Special Mode
```

In this case, the table looks like this (in the **Cutting Technology Tables** dialog box, in the **Cutting** tab):



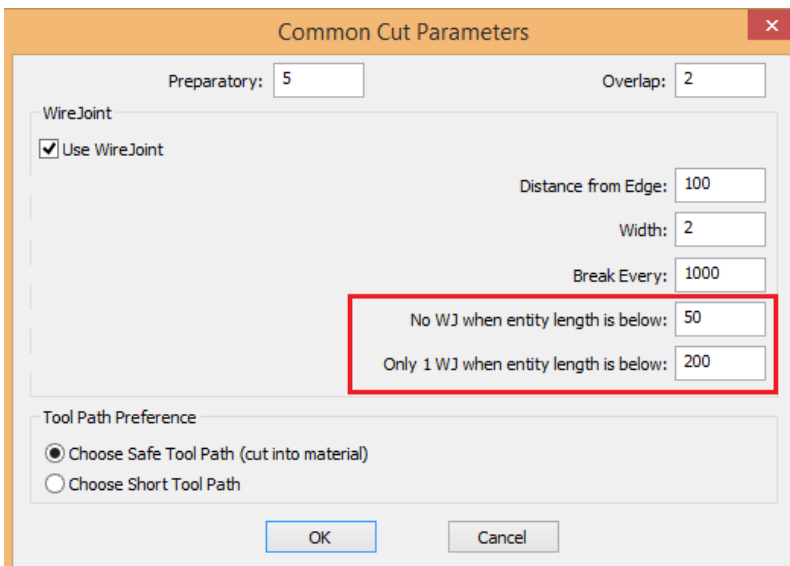
3.4 Improved WireJoint Control in Common Cuts

WireJoints are a type of MicroJoint.

cncKad has two new options for defining WireJoints for common cuts:

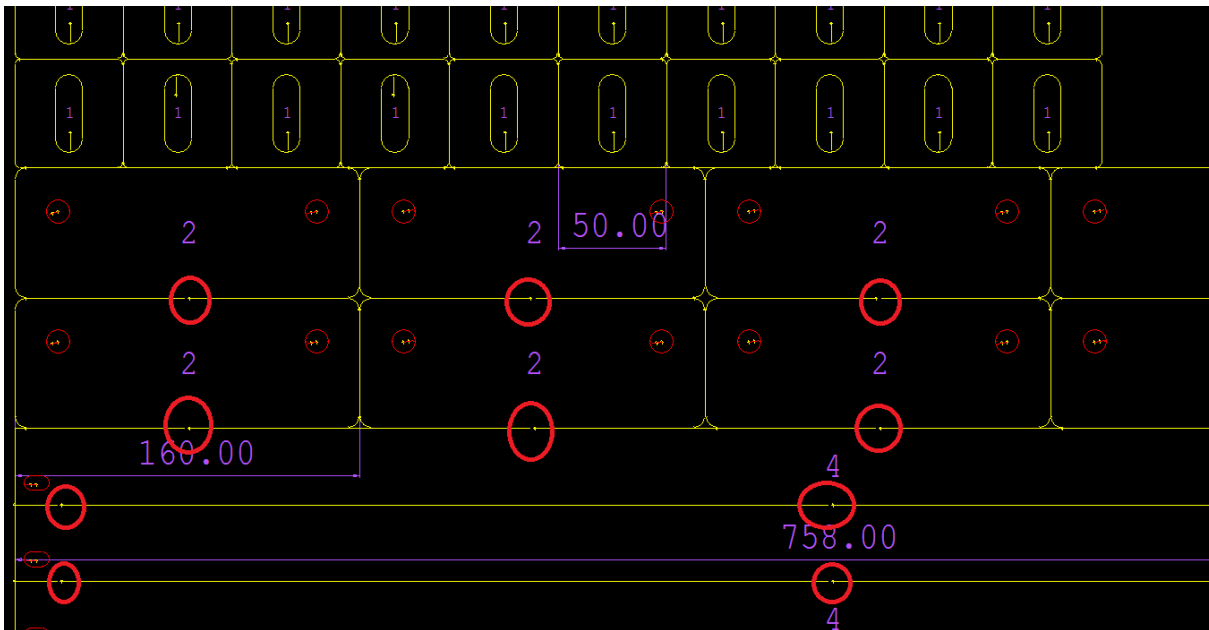
- **No WJ when entity length is below** – **cncKad** does not place a WireJoint when the length of the entity is smaller than the defined length.
- **Only 1 WJ when entity length is below** – **cncKad** only places one WireJoint when the length of the entity is smaller than the defined length.

In the **CAM** menu => **Cut CAM** => **AutoCut** => **AutoCut** tab => **Common Cut** section, select **Perform**, and click the **Settings** button. The **Common Cut Parameters** dialog opens:



See the WireJoints in the red circles in the following picture:

- Entities longer than 200 have WireJoints on the left and in the middle.
- Entities between 50 and 200 have one WireJoint.
- Entities shorter than 50 have no WireJoints.



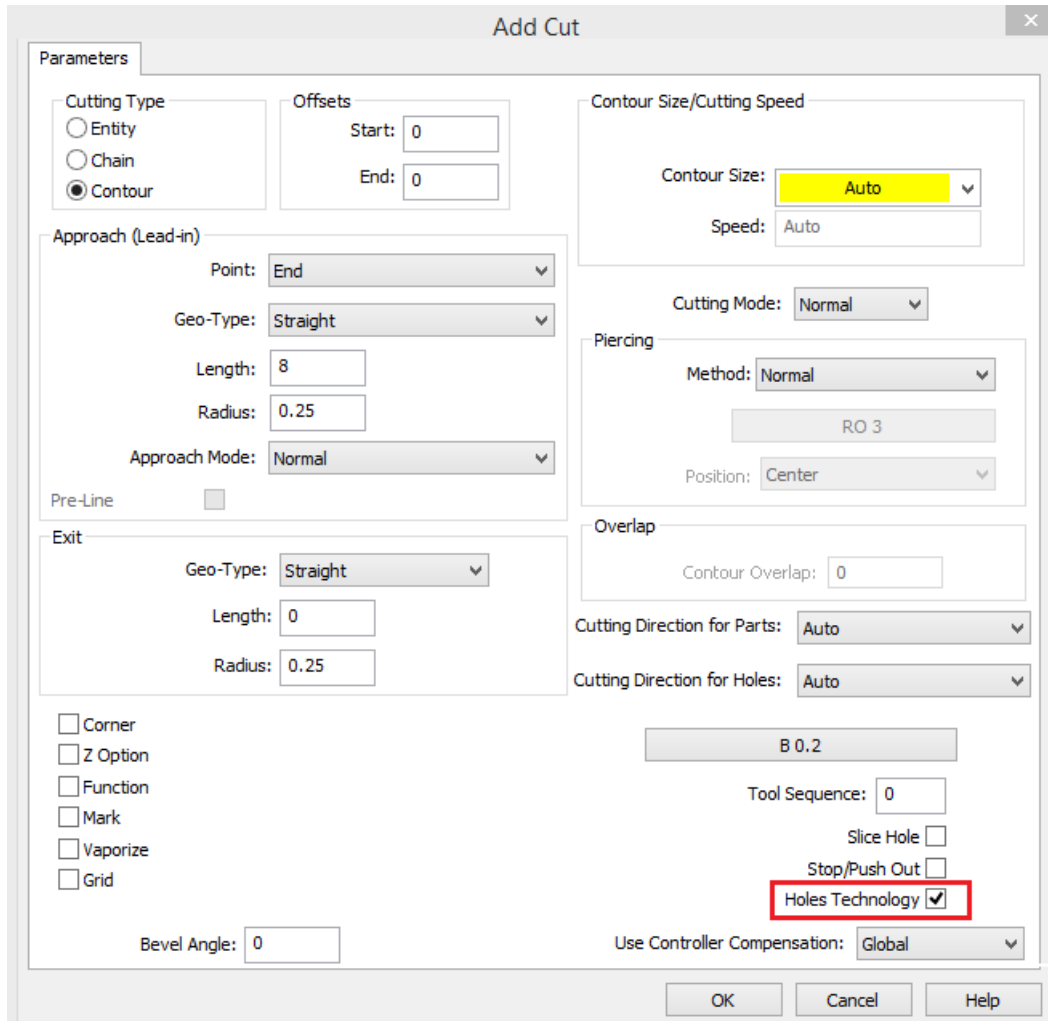
3.5 Make Corrections to Circles

You can refine circle cutting using the circular hole technology parameters. Select between:

- Slowing down at the end of cutting the hole
- Adding a bump to the end of the hole

To set these parameters:

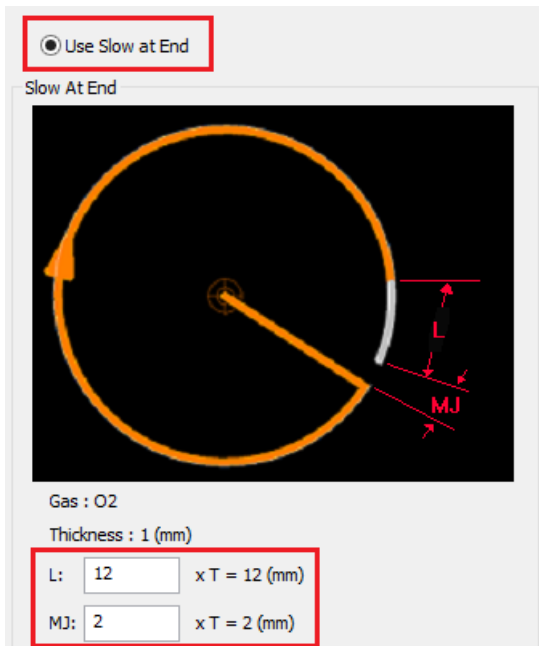
1. In **cncKad**, in the **CAM** menu => **Cut CAM** => **Add Cut**, check the **Holes Technology** checkbox:



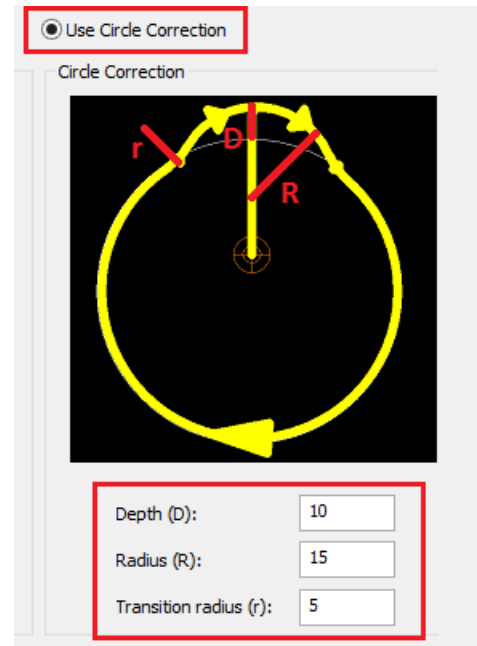
- This option is also available in the **CAM** menu => **Cut CAM** => **AutoCut**, in the **AutoCut** tab, by clicking the **Settings** button in the **Holes Technology** section.

- The **Holes Technology Parameters** dialog box opens. Select one of the following options:

To slow down the last part of the circle cutting, select **Use Slow at End** and type the values that apply.



To define a bump, select **Use Circle Correction** and type in the values that define the bump:



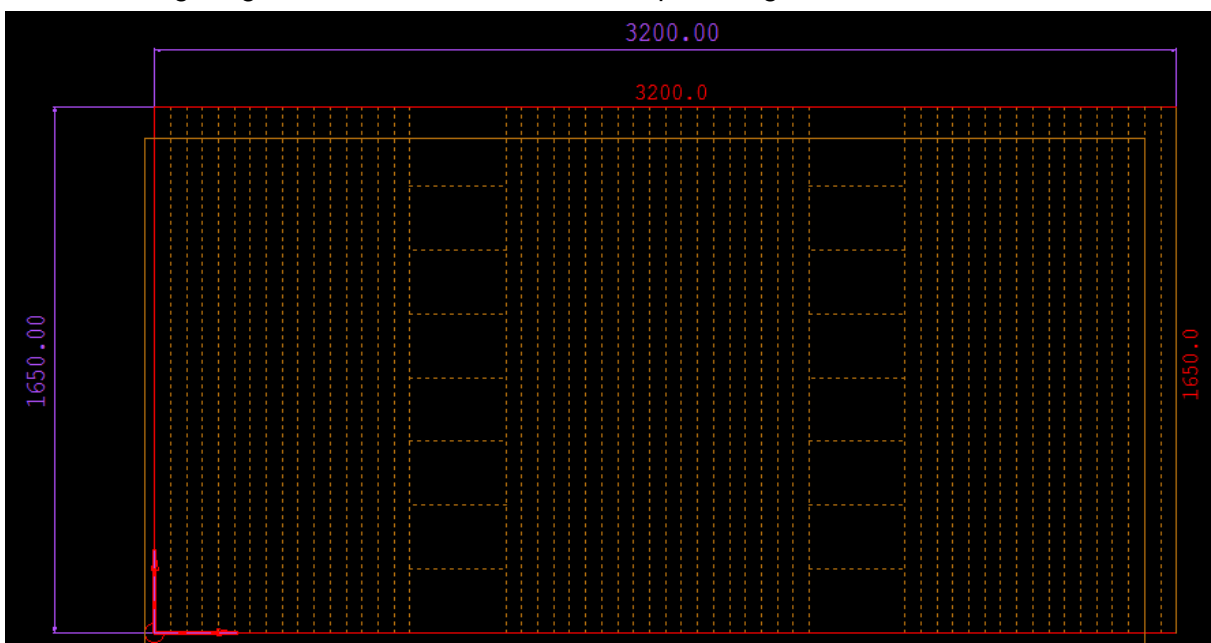
- Click **OK**.

3.6 Display Machine's Grill Geometry Background

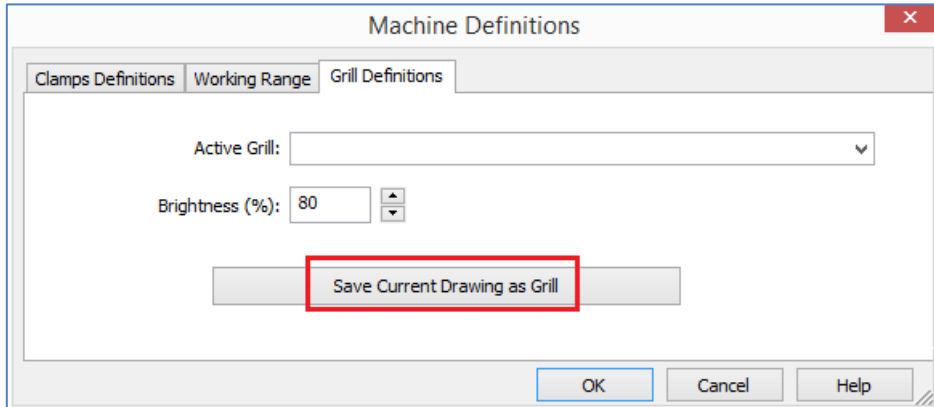
In **cnkKad** and **AutoNest** it is now possible to create and display the grill geometry representation of the current model as the background of the current view. This feature is supported for all sheet view types.

To create a grill:

- Create a DFT file with the desired grill drawing. The grill should extend beyond the borders of the working range on all sides. Here is an example of a grill DFT:



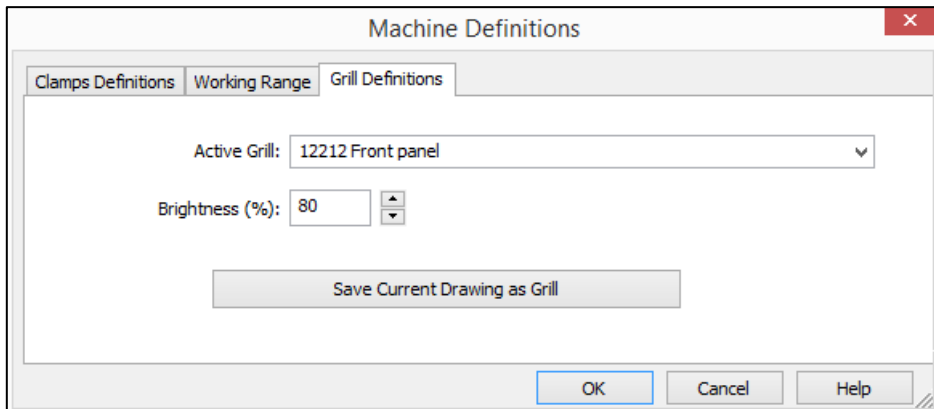
2. In the **Settings** menu => **Machine Settings** => **Machine** tab => **Machine Definitions** button => **Grill Definitions** tab, click the **Save Current Drawing as Grill** button:



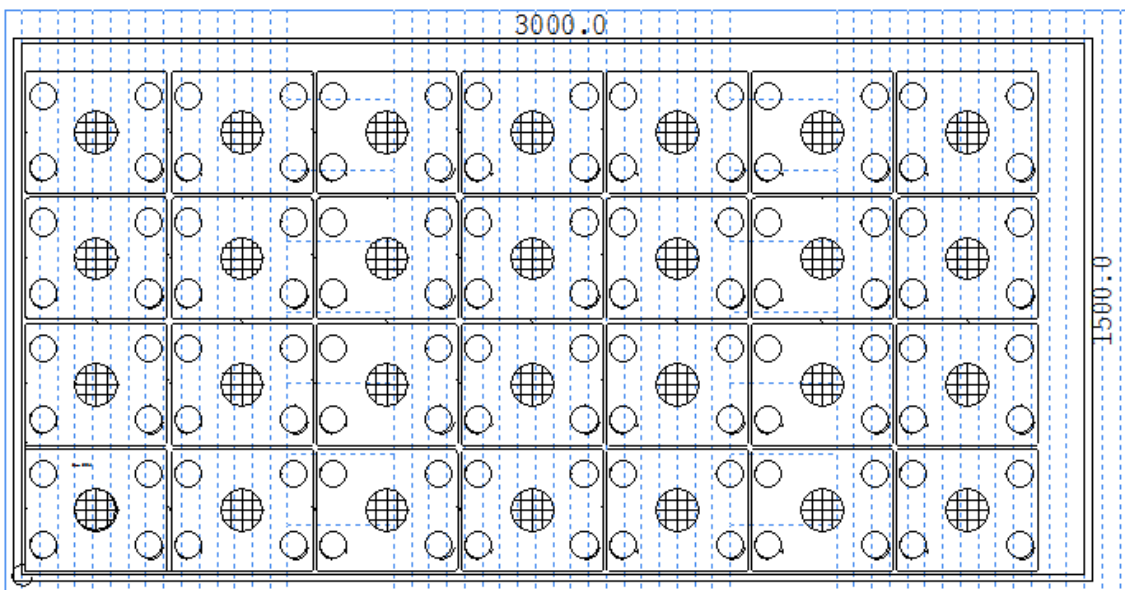
3. In the **Grill File** dialog box, type a file name and click **Save**. The saved file will have a GRILL extension.

To use a grill:

1. In the **Settings** menu => **Machine Settings** => **Machine** tab => **Machine Definitions** button => **Grill Definitions** tab, in the **Active Grill** field, select the grill name from the dropdown list.
2. Determine how brightly to display the grill by setting the value in the **Brightness** field:



This is a part opened on a grill:

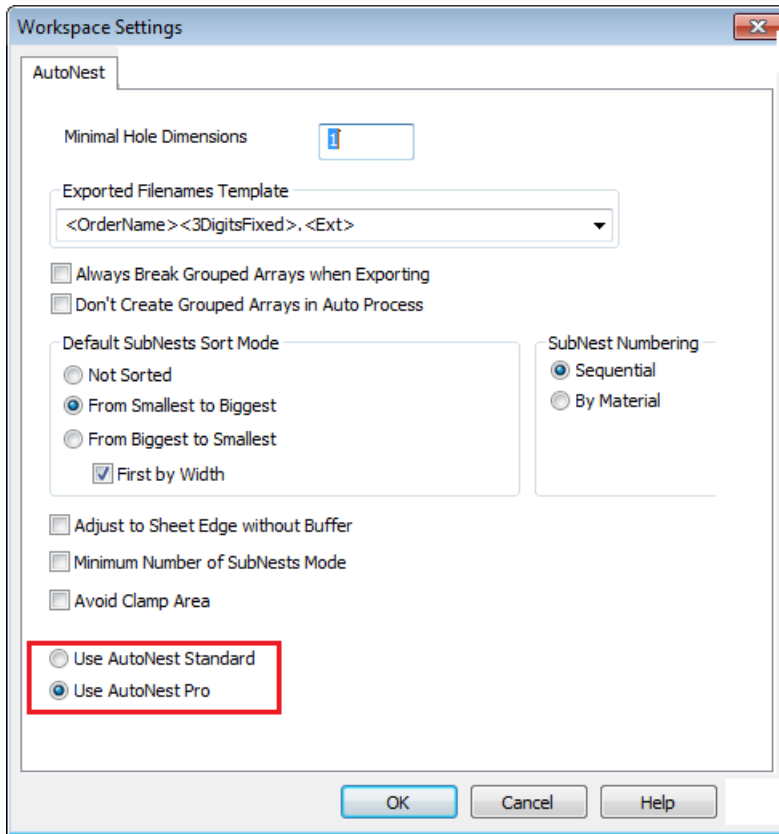


4 New: AutoNest Pro

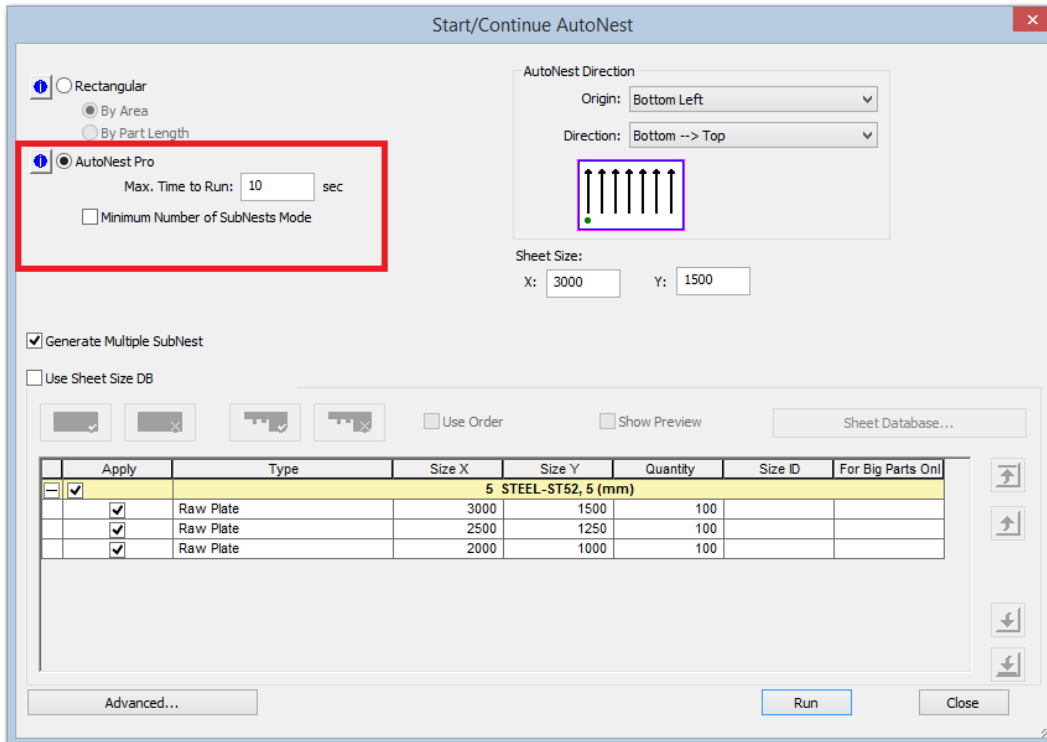
AutoNest Pro is a new addition to **AutoNest**. It includes an automatic nesting algorithm that greatly improves both nesting quality and speed.

💡 **AutoNest Pro** is a separate module, sold for an additional charge.

After adding **AutoNest Pro** option to Hasp key, you can enable it in the **Settings** menu => **Workspace Settings** => **AutoNest** tab:

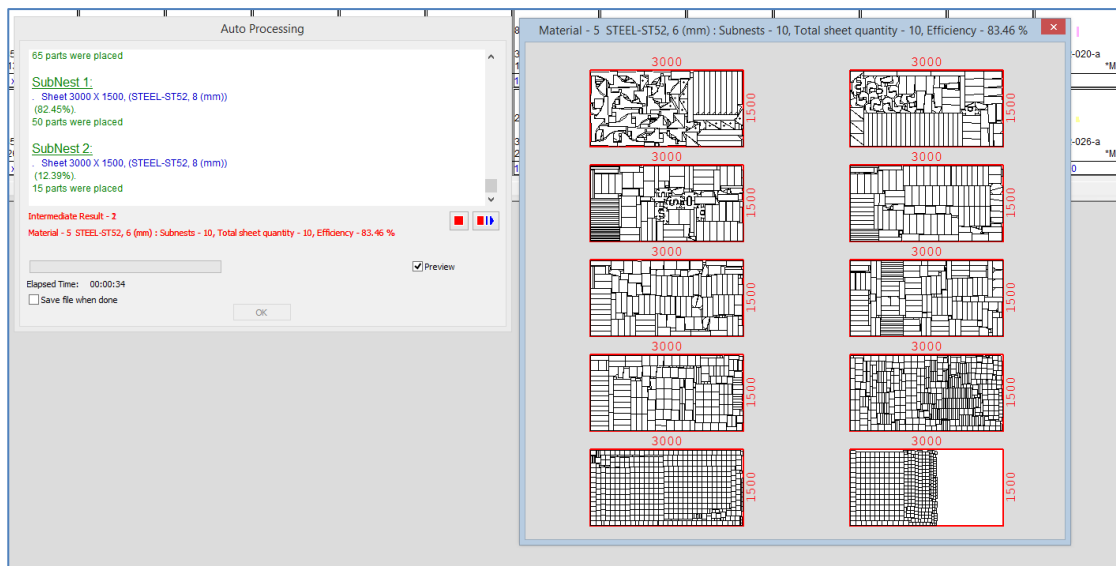


When you select **Start/Continue AutoNest** (from the **Nesting** menu), you can see that there are new options for arranging the parts on the nest:



AutoNest Pro:

- Gives the most efficient arrangement of parts on the sheets.
- Gives you full control over the running time.
- Supports a minimum number possible of SubNests, when you check the **Minimum Number of SubNests Mode** option.
- During nesting, shows multiple sketches of the proposed nests:



- Allows you to stop the nesting when you see a satisfactory result.

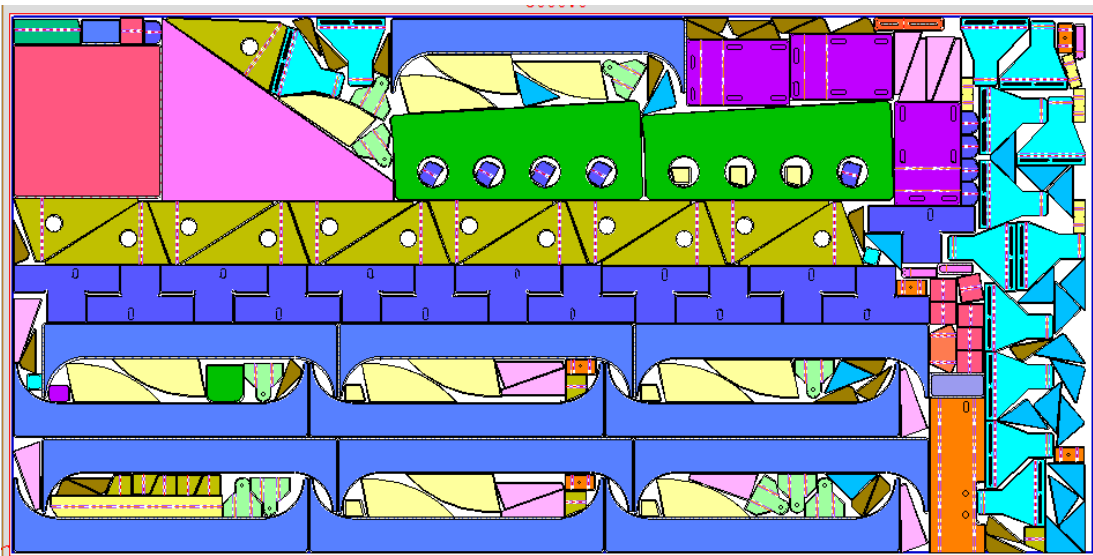
You can return to the old method by selecting **Use AutoNest Standard** option in the **Settings** menu => **Workspace Settings** => **AutoNest** tab.

The following example compares standard overnight and the same .DSP file with **AutoNest Pro** results.

Standard *AutoNest*:



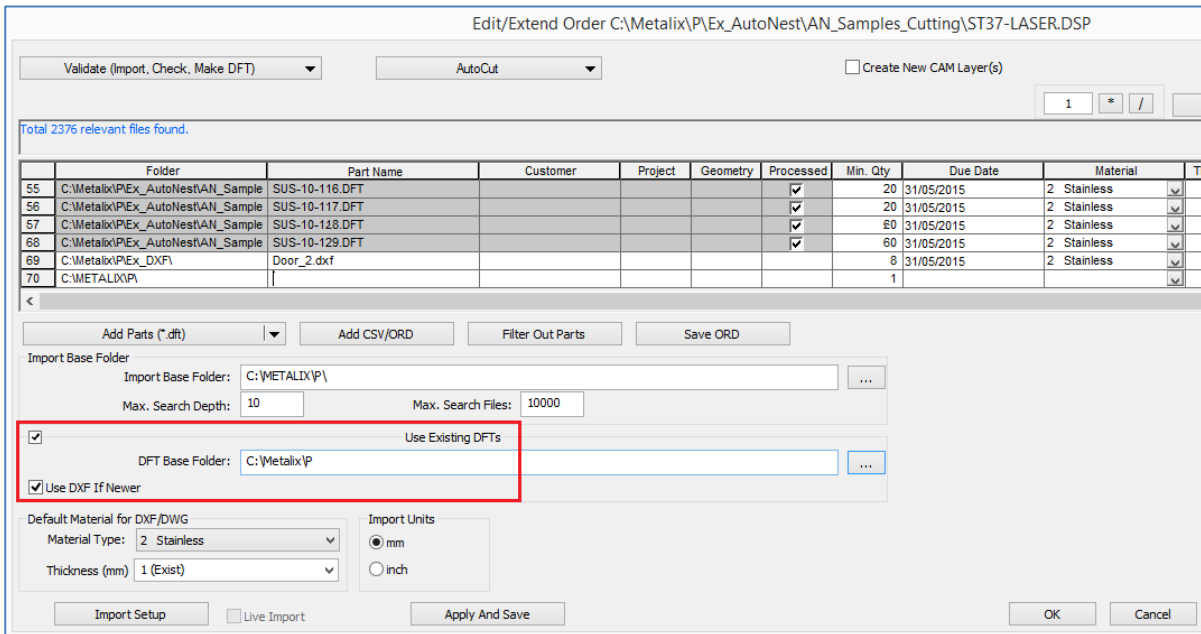
AutoNest Pro:




5 New in AutoNest

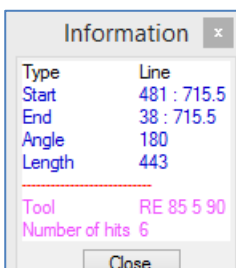
5.1 Use Newer DXF Files

You can make sure you are using the most recent DXF files when validating a daily job in **AutoNest**. In the **Edit/Extend Order** dialog box (accessed from **Part => Qty. Order**), check the **Use DFX If Newer** checkbox so that **AutoNest** re-imports DXF files if they are more recent than the DFT file:



5.2 Ask Feature

You can now get information about the items in your **AutoNest** display area, in the same way that you get information in **cncKad**. Click the **Ask** icon  (or press F8). The cursor changes to a question mark. Click an entity in the display area. **AutoNest** opens a small window in the top left corner with the relevant data, for example:




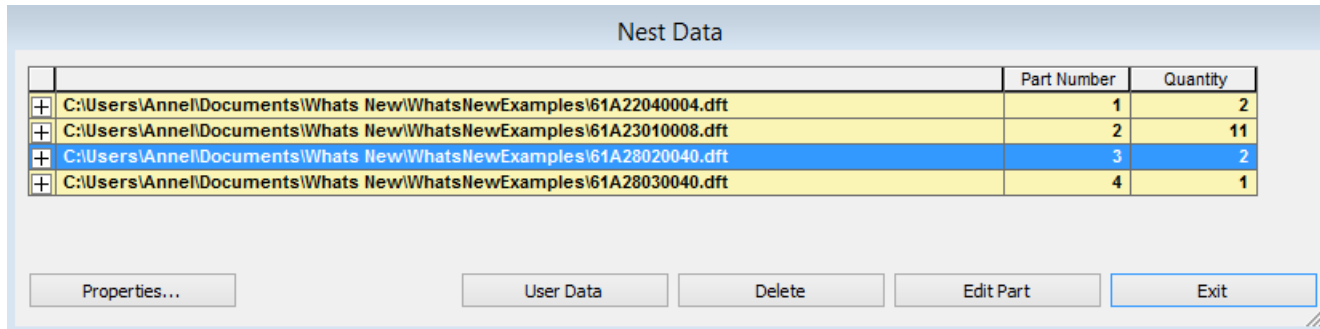
To see information on another entity, click anywhere in the display area. The window stays open until you close it.

5.3 Get Part Information and Instance Data

Two new options are now available in *AutoNest*, accessible from the **SubNests** toolbar

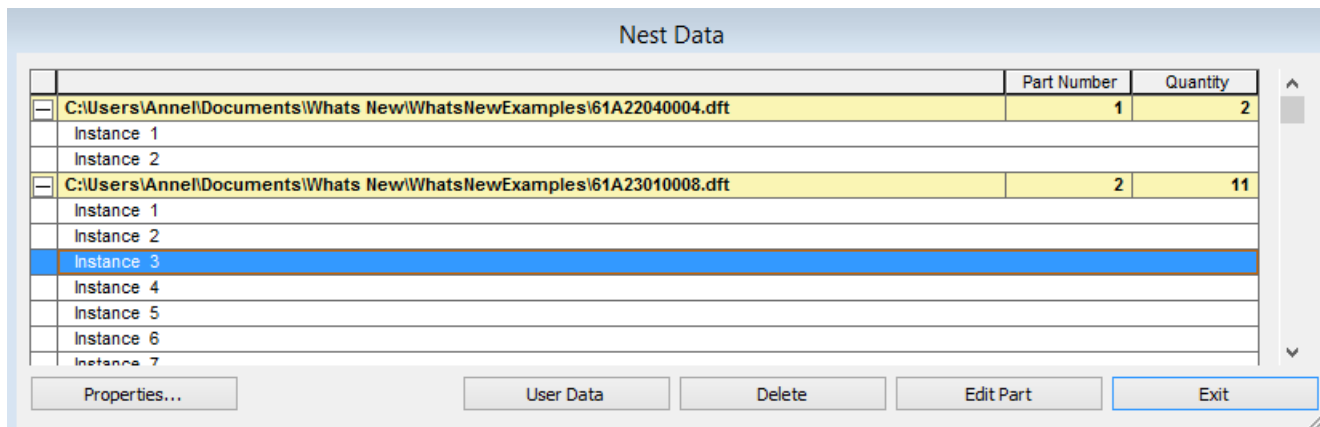


- When you click the **Get Part Information** icon  and click an instance of a part in the nest, *AutoNest* selects all the instances of this part and opens the **Nest Data** dialog box:




Continue clicking parts to see the relevant summarized information.

- When you click the **Get Instance Data** icon  and click an instance of a part in the nest, the **Nest Data** dialog box opens, displaying more information:



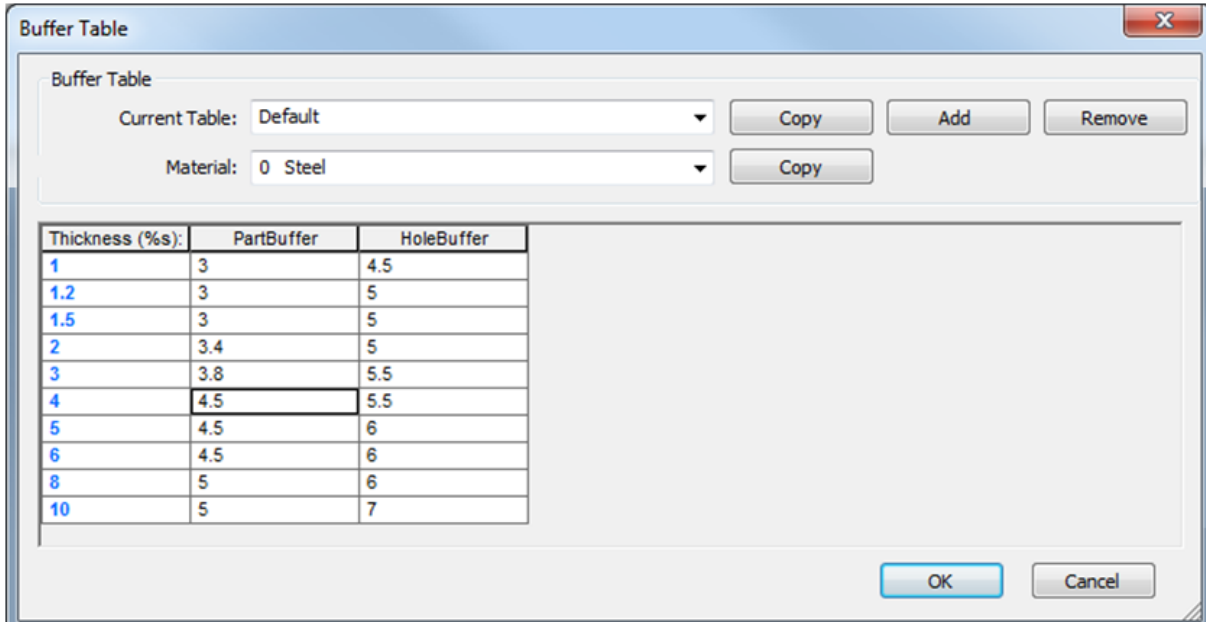
- You can control the level of information displayed in this dialog box by clicking the plus and minus

signs  at the start of each line.

5.4 Create Buffer Tables per Machine

AutoNest supports the creation and maintenance of buffer data tables for each machine model. A **Buffer Table** contains the part and hole buffer values for each material & thickness combination for the active machine.

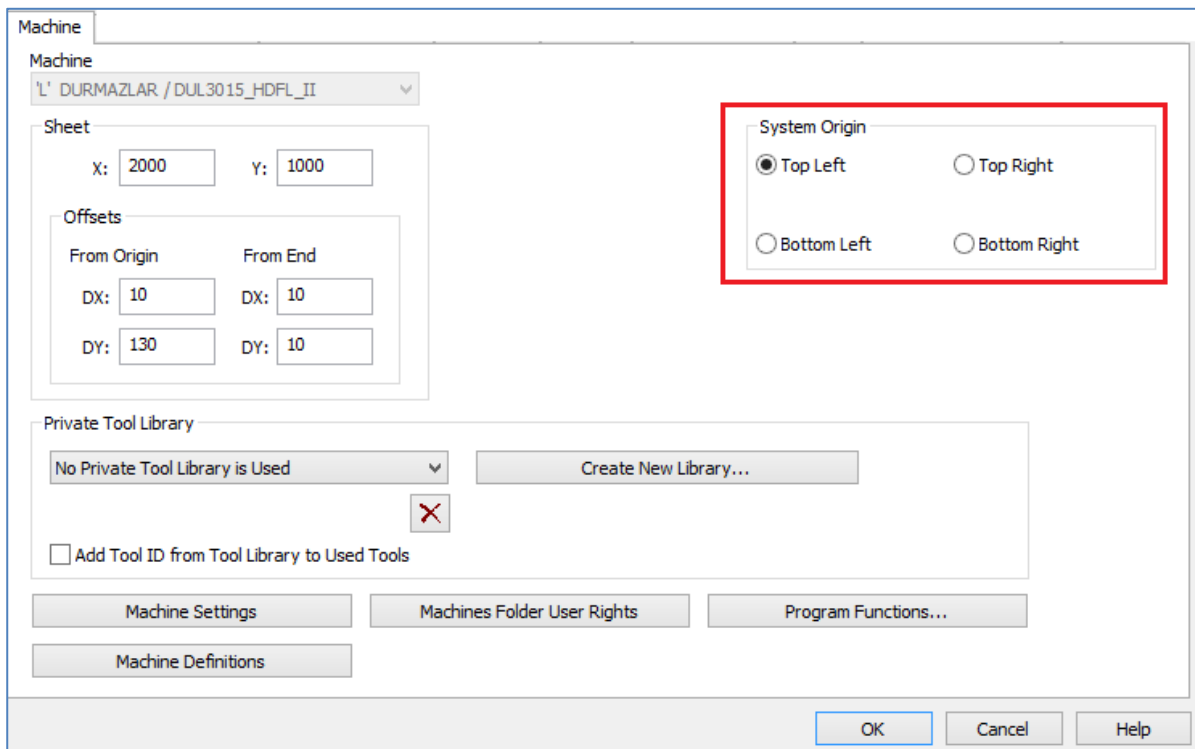
Click the **Buffer** icon  on the **CAM** toolbar to open the buffer table:



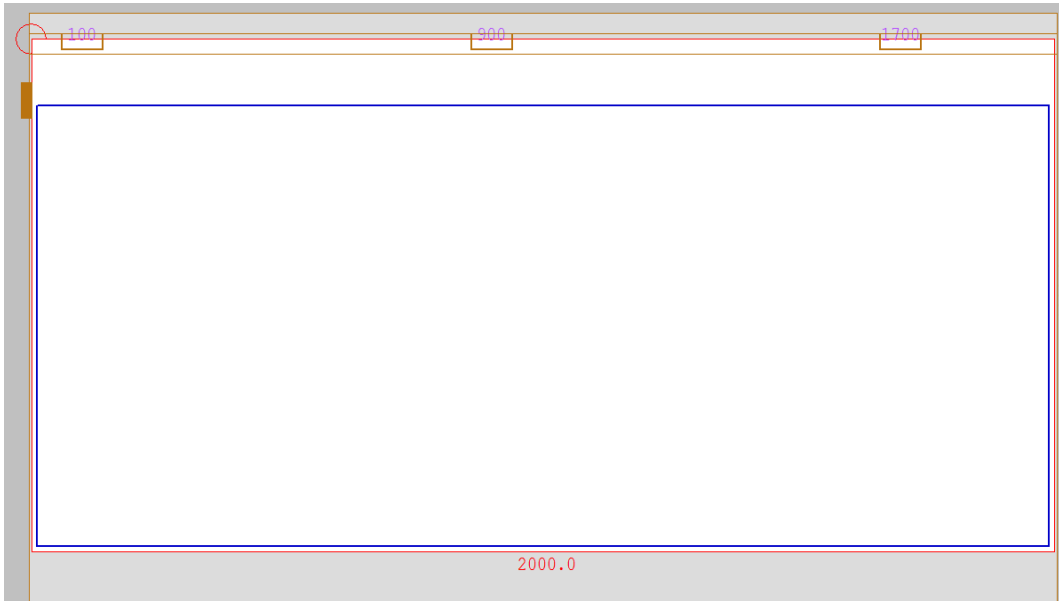
5.5 Define System Origin

In **AutoNest** you can now define the default starting point of the nest.

In the **Settings** menu => **Machine Settings** => **Machine** tab, select one of the options for **System Origin**:



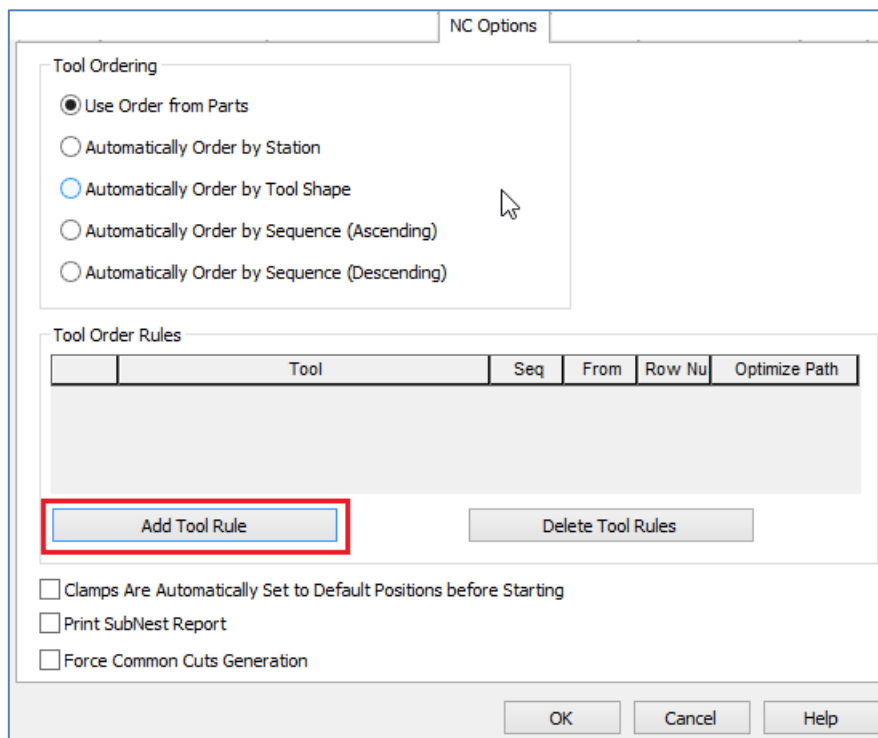
This is how the sheet looks in **AutoNest** with the above settings:



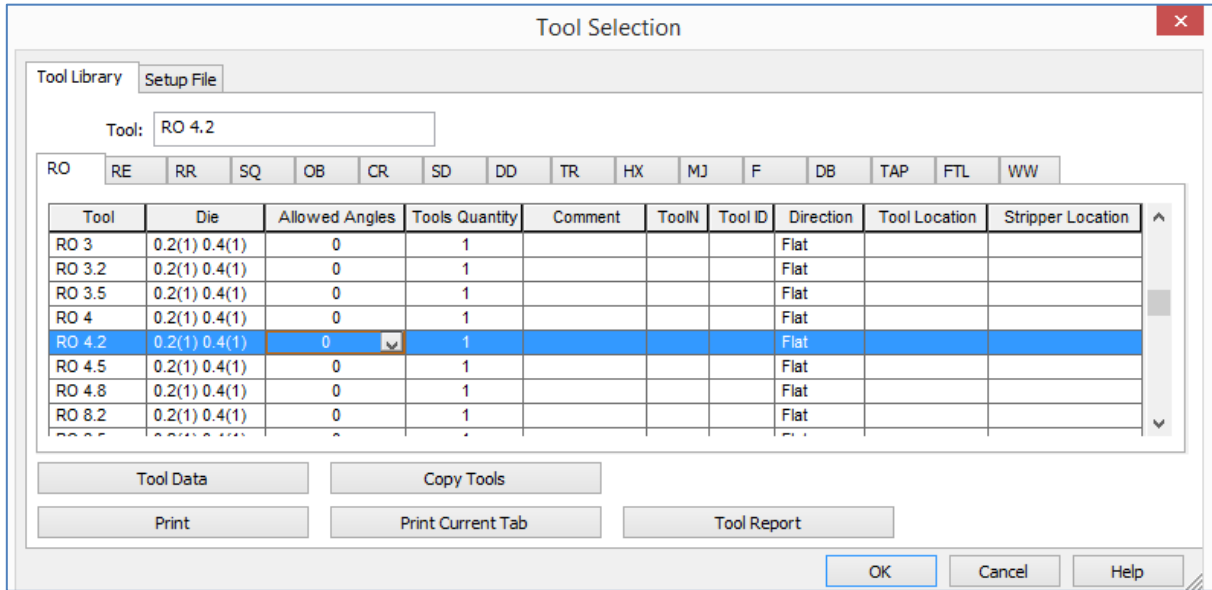
5.6 Set Start Corner and Optimization Path for Tools

In **AutoNest** you can now define the starting corner and optimization path for specific tools:

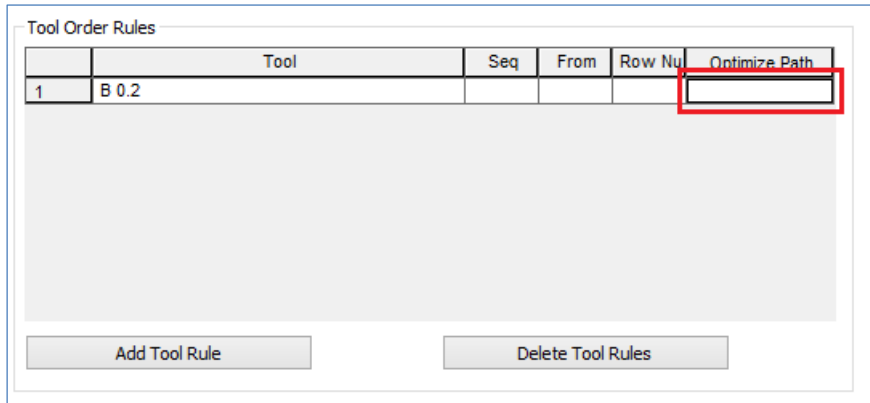
1. In the **Settings** menu => **Machine Settings** => **NC Options** tab, click the **Add Tool Rule** button:



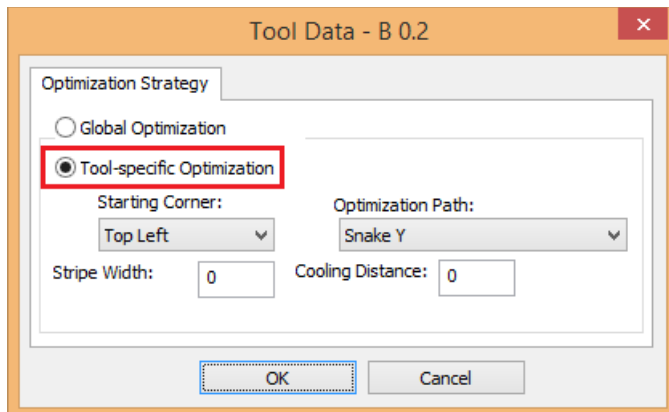
- In the **Tool Selection** dialog box, select a tool and click **OK**:



- In the **NC Options** tab, in the **Tool Order Rules** section, click the **Optimize Path** column on the right:

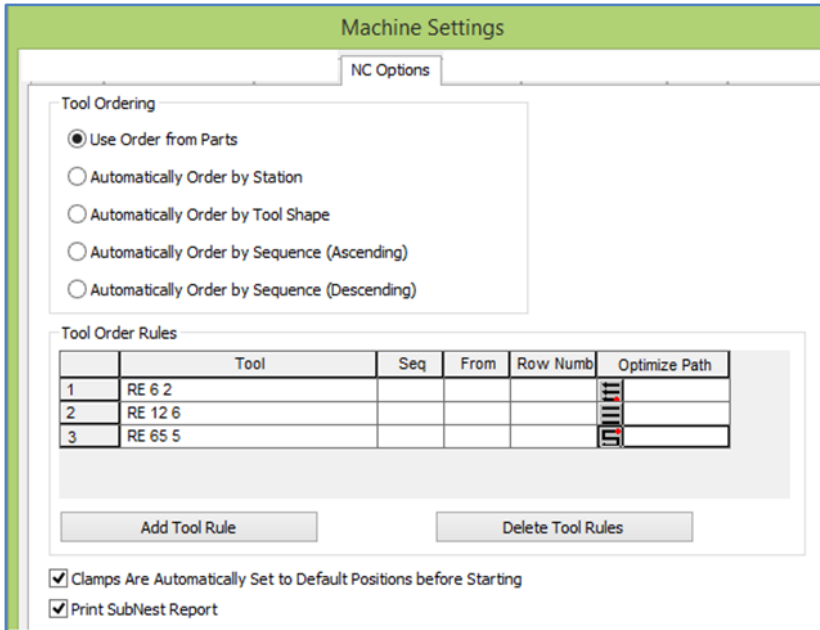


The **Tool Data** dialog box opens:



- Select **Tool-specific Optimization**. Select a starting corner and an optimization path from the dropdown lists and click **OK**.

The example below shows definitions for three specific tools:



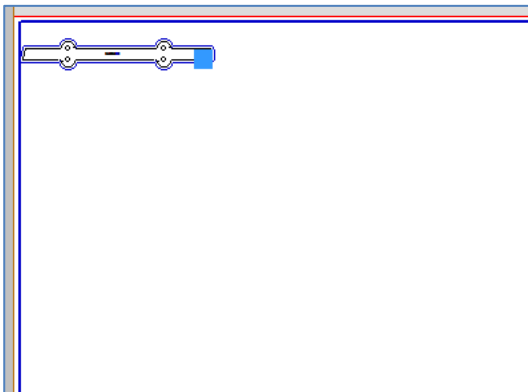
The only way to override the rules is during NC generation. In the **Used Tools** dialog box, you can change **Order/Optimize**, and continue to generate the NC.

However, the next time you open the **Used Tools** dialog box, the rules will be applied again.

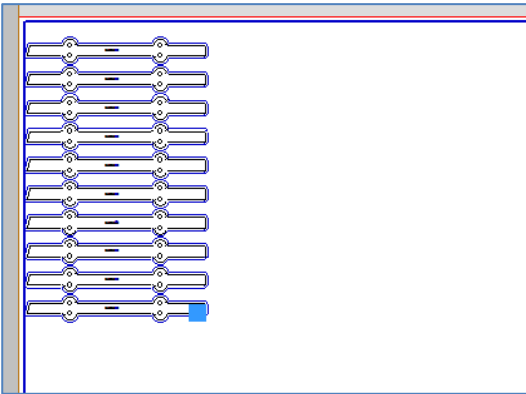
5.7 Multiply Part Instances Using Mouse (Dynamic Grid)

You can use the mouse to nest instances of a part in a specific area of your nest.


For example, place one instance of a part on your nest. Click it. A small blue square appears on the bottom right of the part:



Click the blue square and drag it down and right to define a temporary rectangle (thereby creating a dynamic grid) to hold all the part instances. When you release the mouse, **AutoNest** fills the rectangle with as many instances as it can, up to the maximum number of instances defined:



5.8 Use Empty SubNest

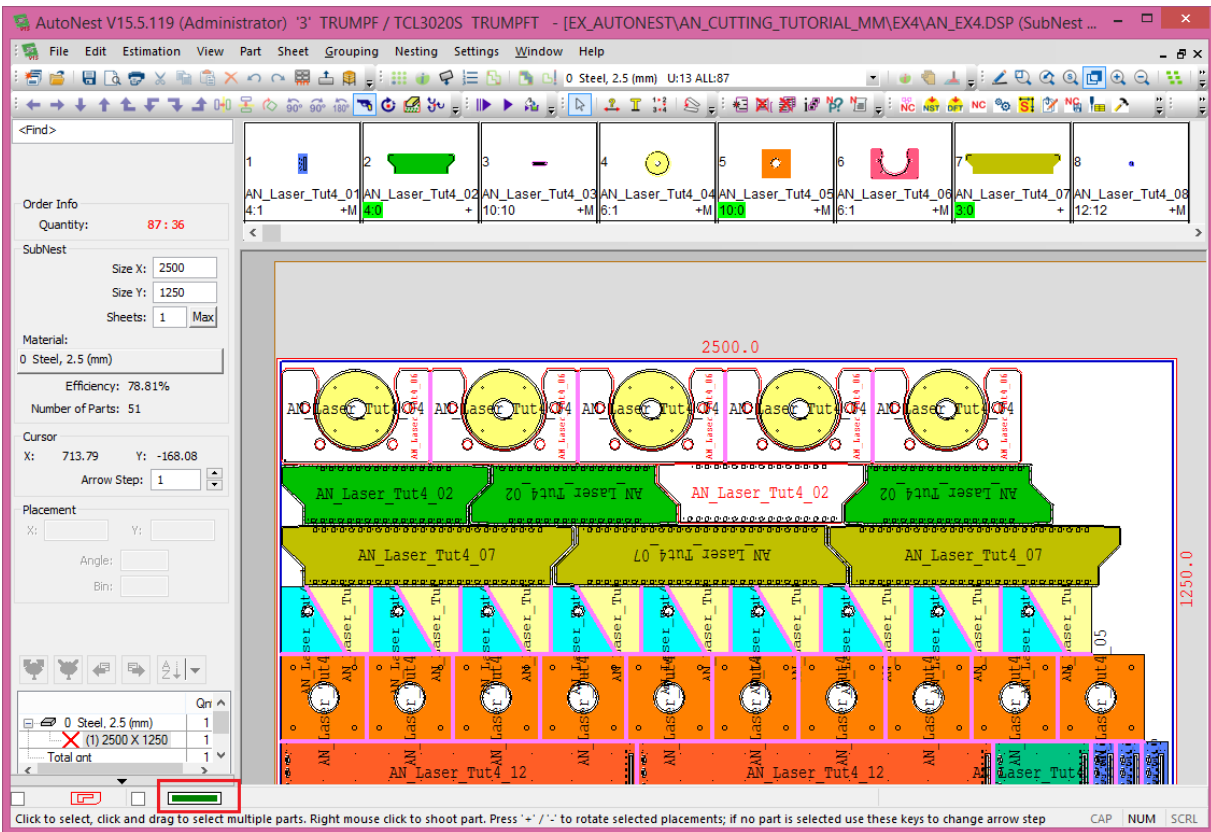
When you run **Start/Continue AutoNest** (for example, by clicking the icon ) and you already have an empty SubNest, **AutoNest** uses it and does not start a new SubNest.

5.9 Support Tooling in AutoNest

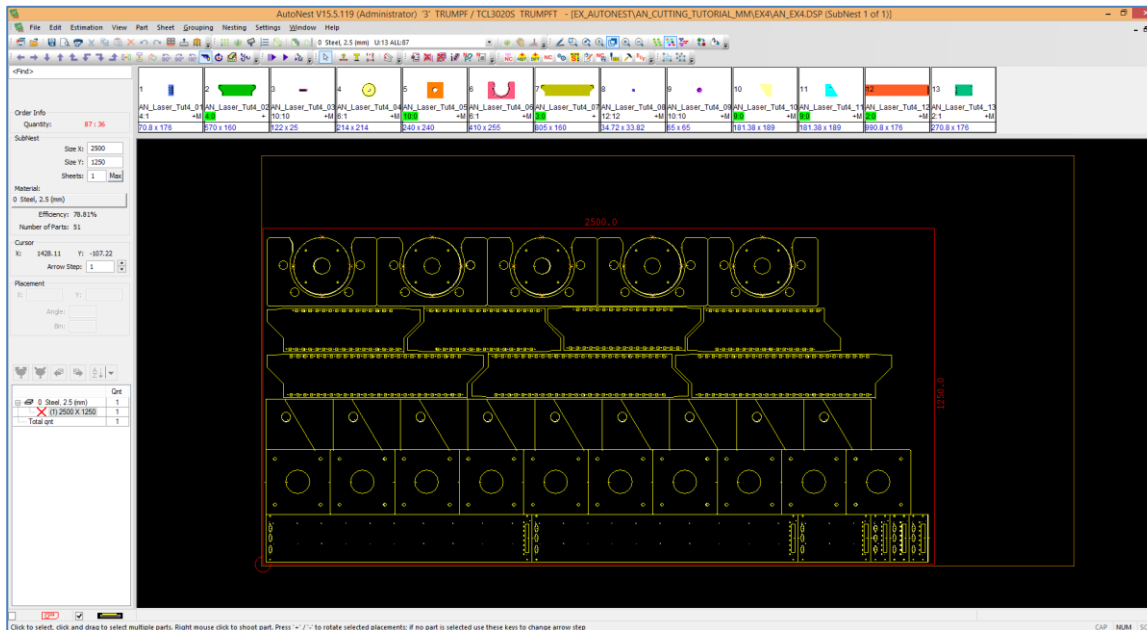
You can now [view](#) and [manipulate](#) the tooling from within **AutoNest** with the new CAM menu.

5.9.1 Display Tooling

To change to the tooling view, at the bottom left of the screen, click the **Regular View** button



The display changes to the ***cncKad*** view in a graphic screen:



Trim sheet (for punch machines), split sheet, and cut sheet are now visible dynamically, and reflected in the **Used Tools** dialog box.

To revert to the usual **AutoNest** view, click the **Tooling View** button .

Many display options are now available in **AutoNest**.

From the **View** menu:

- **Show End Points**
- **Full Cut Tool Width**
- **Rapid Tool Path** -- toggle the view of how the head travels between three different levels of detail: showing holes (**All**), parts (**Only Parts**), or neither (**None**). Click Alt+B to toggle between the levels.
- **Multi-Color Tools**
- **Fill Tools**
- **View Die Modes** – for punch machines
- **Color Tool Path by Speed** -- for laser machines, you can change the display to see tool path speeds in different colors
- **Show Bend Lines**
- **View Push Out Mode**

From the **Part** menu, you can now **Show Active Cups** for part unloader.

5.9.2 Manipulate CAM View

In **AutoNest**, you can make changes to the CAM. This was previously only possible in **cncKad**. Most of these functions are available from the **CAM** menu, when you are in the [tooling view](#). You can make the following changes (depending on your machine type):

⚙️ For punch machines only:

- Make changes in the **Used Tools** dialog box in a nest: changing the tools and tool data, selecting a turret setup file, adding tool functions, etc.: in **CAM** menu => **Used Tools**.
- Drag punching, and change MicroJoints.
- Control pickup: see [moving the pickup position](#).

⚙️ For laser machines only:

- Change MicroJoints: in **CAM** menu => **Cut CAM** => **MicroWeld/MicroJoint** => **Add/Edit/Delete/Move**.
- Change the lead-in (entry): in **CAM** menu => **Cut CAM** => **Edit Contour Entry**.
- Apply the [smart cut](#): in **CAM** menu => **Smart Cut**.

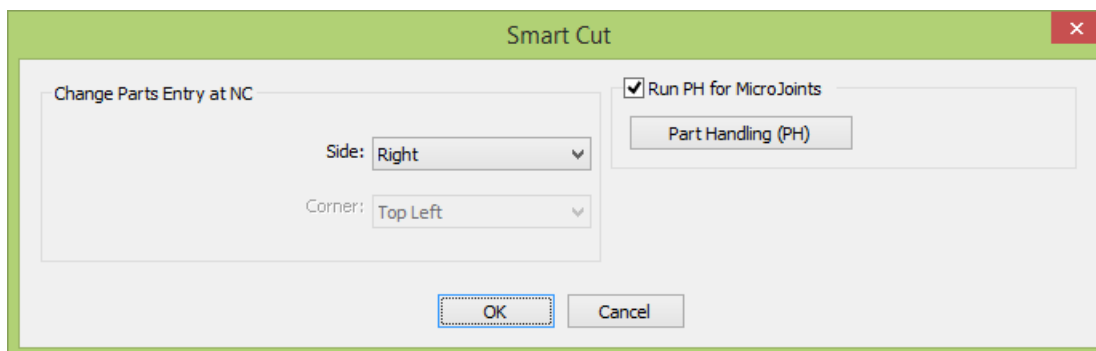
When using both punch and laser machines, you can edit and delete CAMs (in the **CAM** menu) and change the CAM processing order.

5.10 Apply Smart Cut

Smart Cut allows you to apply automatic changes (to parts entry and MicroJoint part handling) to the SubNest.

⚙️ Smart Cut is only available with laser machines.

In the **CAM** menu, select **Smart Cut**. The following dialog box opens:



You can make changes to the part entry point by selecting an option from the **Side** dropdown list or from the **Corner** dropdown list.

You can also [make changes to the part handling](#) by checking **Run PH for MicroJoints**, clicking the **Part Handling (PH)** button, and editing the data in the dialog box.

5.11 Nest According to Turret Restrictions

⚙️ This feature only applies to punch machines.

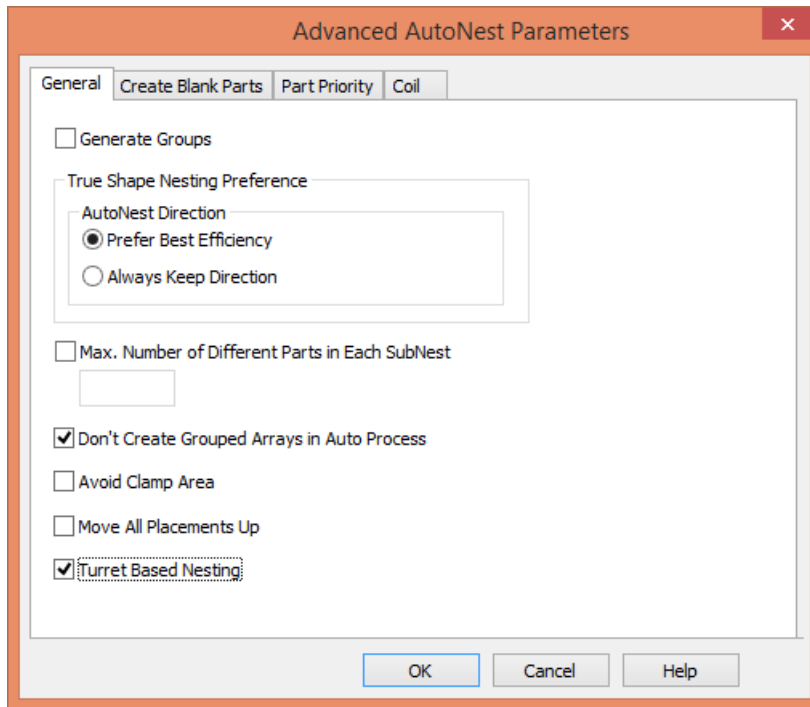
AutoNest now arranges parts on the SubNests, taking into account the tools in the turret, their indexes, the number of stations, and the station sizes.

For example:

1. **AutoNest** adds a part from your order to the first SubNest, based on the tools that can be added to the turret.
2. **AutoNest** continues to add parts.
3. When **AutoNest** encounters a part and cannot add the tools needed for the part to the turret, it places that part on a new SubNest.

To tell **AutoNest** to consider the turret restrictions:

1. Click the **Start AutoNest** icon .
2. At the bottom of the **Start/Continue AutoNest** dialog box, click the **Advanced** button.
3. In the **General** tab, check the **Turret Based Nesting** option and click **OK**:



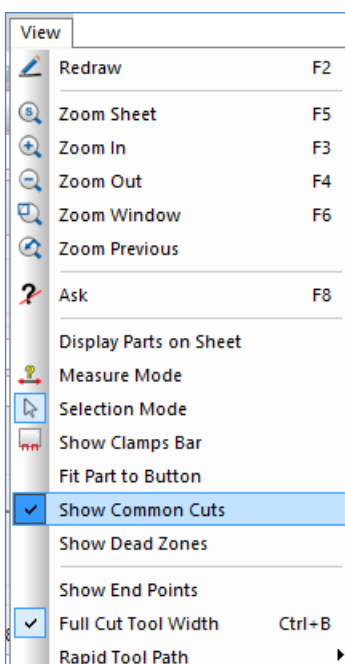
Your preference is saved.

5.12 Create Common Cuts Dynamically

 This feature only applies to laser machines.

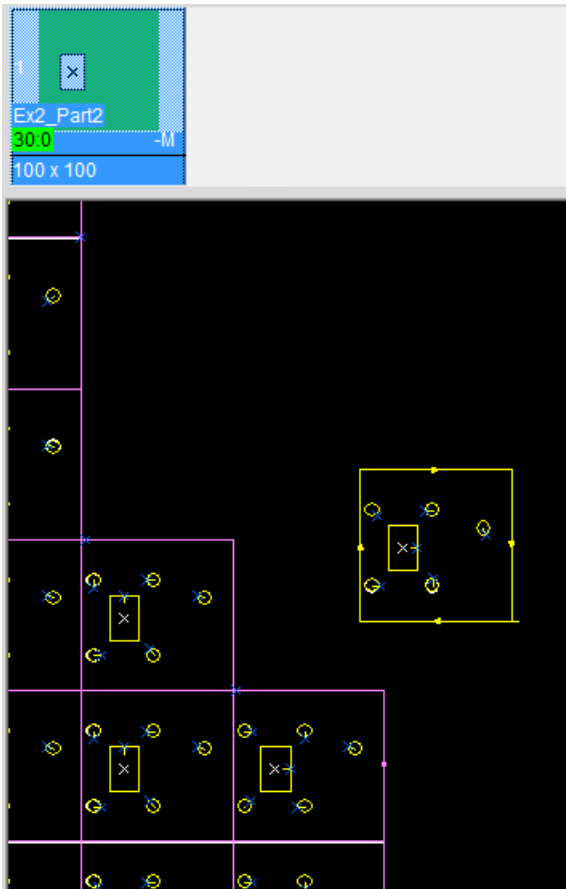
AutoNest can now indicate common cuts dynamically, as you work. Now there is no need to create the NC when you want to see the common cuts.

In the **View** menu, make sure you select **Show Common Cuts**:

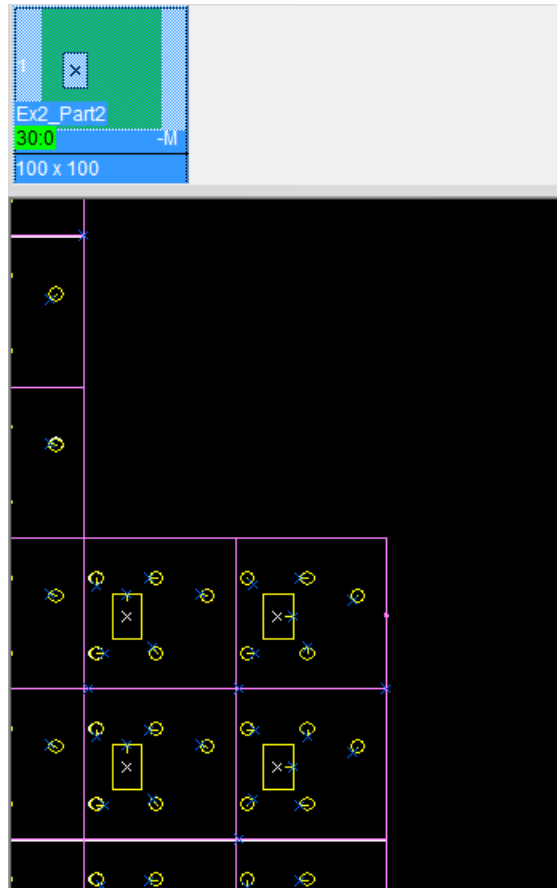


As before, a pink line indicates common cuts between parts.

Here you can see a part at a distance from the other parts:



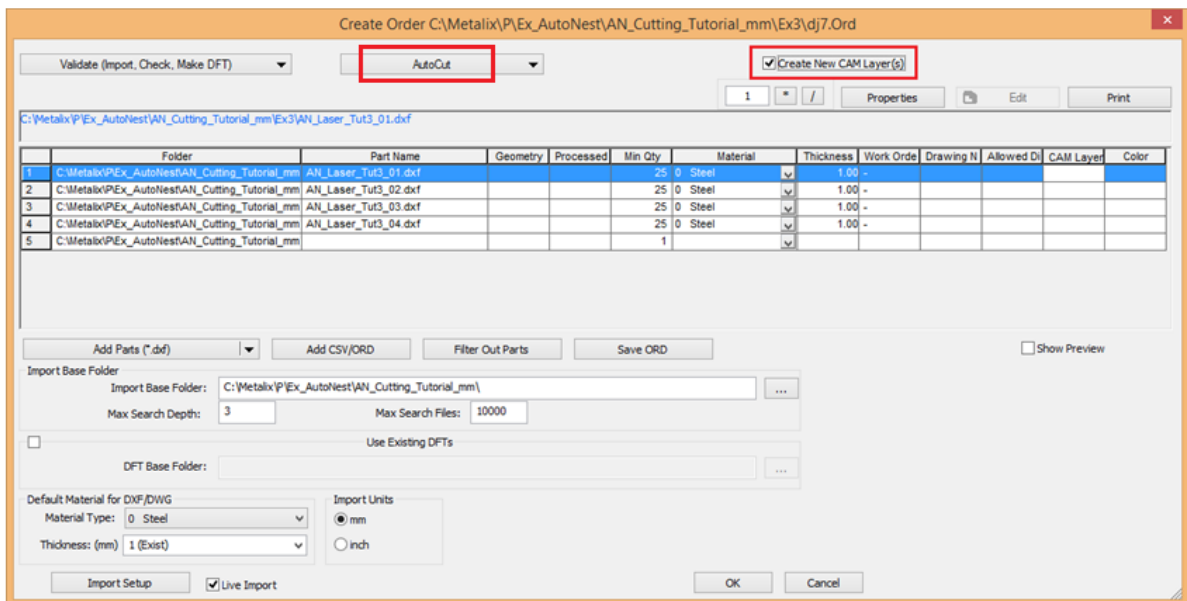
Here are common cuts between all the parts:

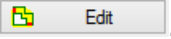


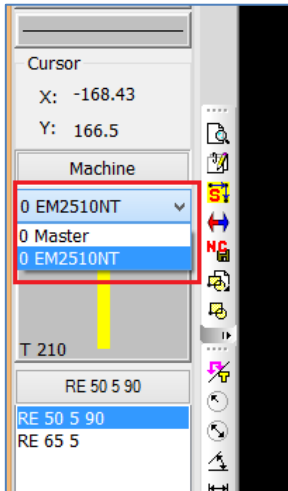
5.13 Create CAM Layers

By default, **AutoNest** processes the single CAM layer. You can add CAM layers for a machine and then tell **cncKad** to process a particular layer of the geometry:

1. In the **Create Order** dialog box (shown when you select **New** from the **File** menu), add some parts.
2. Select one of the parts and check the **Create New CAM Layer(s)** option:



3. Click the **AutoCut** (or **AutoPunch**) button and select **All**. Click **Auto**, and close the **Operation** dialog box. In the **Create Order** dialog box, click the **Edit** button . **cncKad** opens.
4. In the **State Bar** on the left of the **cncKad** main screen you can see the two layers:



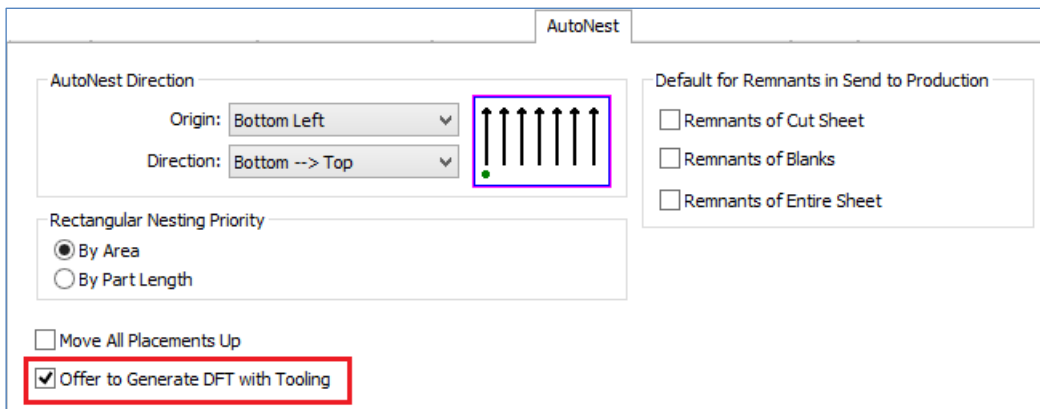
5. From the dropdown list, select the layer you want to view.

5.14 Add Tooling When Exporting SubNest to DFT

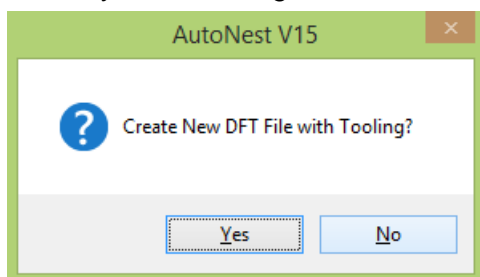
When you want to save the current SubNest as a DFT file and open it in **cncKad**, **AutoNest** asks you if you want to save the tooling data as well.

To do this:

1. In **AutoNest**, in the **Machine** menu => **Machine Settings** => **AutoNest** tab, check **Offer to Generate DFT with Tooling**:



2. Click **OK**. Click the **Open Current Nest as DFT in cncKad** icon . **AutoNest** then shows you this dialog box:



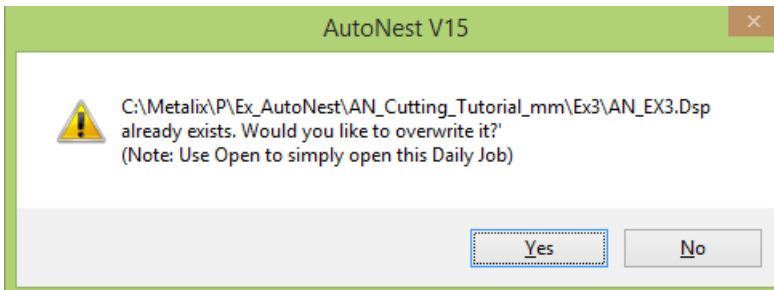
3. Click **Yes**.

5.15 Confirm Overwrite

Two new confirmations are required before overwriting existing files:

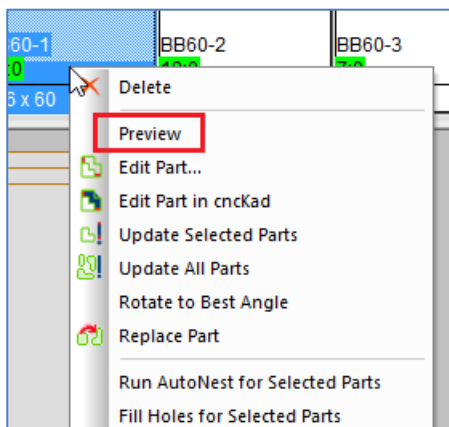
- When you export a SubNest to NST or DFT file -- If such a file already exists.
- When you create a new order file – If it has the same name as an existing DSP file (and there is no corresponding ORD file).

Sample confirmation dialog box:

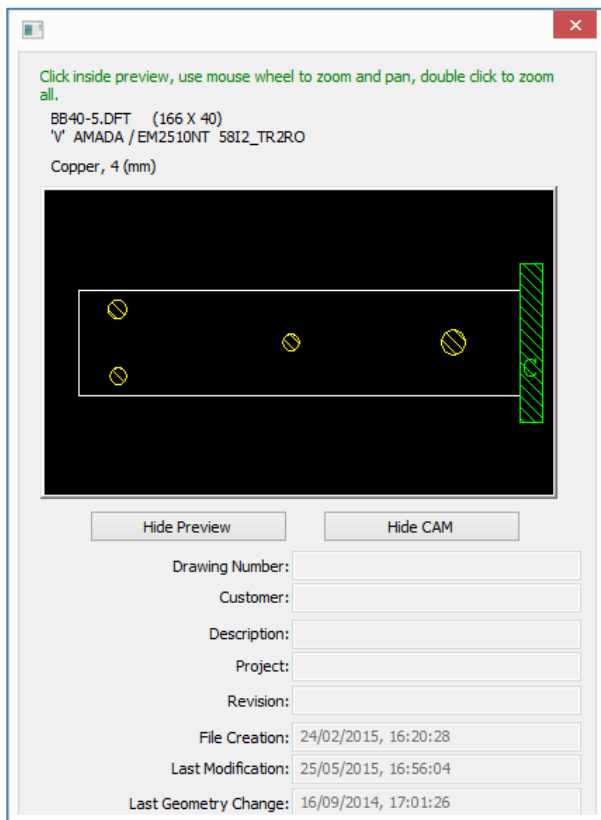


5.16 Right Click to Preview Part

When you highlight a part in the **Parts Bar** and right click the mouse, you can see the **Preview** option:



The preview window opens, for example:



5.17 Define Max. Blank Size for Busbar

 For busbar machines only.

You can now define the maximum size for blanks in busbar machines.

For example, in the **Create Blank Parts** dialog box (in the **Nesting** menu => **Blank Parts** => **Create Blank Parts**), set:

- **Size of Blank to Keep** to 1000mm
- **For Blanks below Size to Keep, Max. Length of Blank** to 300 mm

If the remaining scrap is bigger than 1000mm, **AutoNest** creates one blank and keeps it whole.

If the remaining scrap is smaller than 1000mm and bigger than 300mm, then **AutoNest** creates several same-size blanks, with size smaller than 300mm.

If **AutoProcess** is set, **AutoNest** processes each blank automatically.

Create Blank Parts

Create Blank Parts

Min. X Size for Blanking:

Min. Y Size for Blanking:

Use AutoProcess

Buffer

Top:

Bottom:

Left:

Right:

Set Sheet Edge as Blank Edge

Policy

Max. Total of Blanks

Longest Blank

Size of Blank to Keep:

For Blanks below Size to Keep,
Max. Length of Blank:

Horizontal Tool:

Vertical Tool:

Process Side

	Left Offset	Right Offset
Top <input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Bottom <input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Top Offset		
Left <input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Right <input type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

Blanks Unloading

Use Part Handling

Use Part Unloader

Use Stop Machine (Manual Unloading)

Use Chute for Small Blanks

Max. X Size to Use Chute:

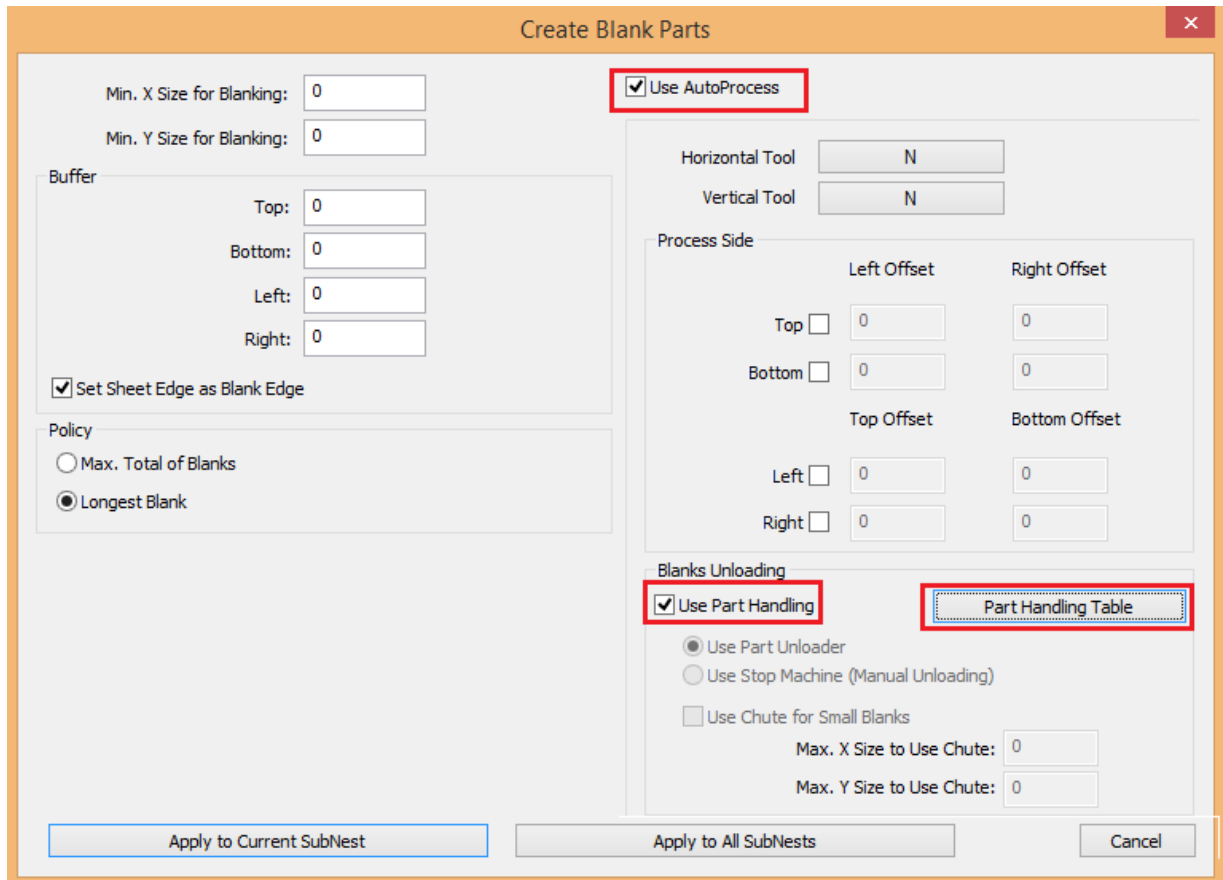
Max. Y Size to Use Chute:

OK Cancel Help

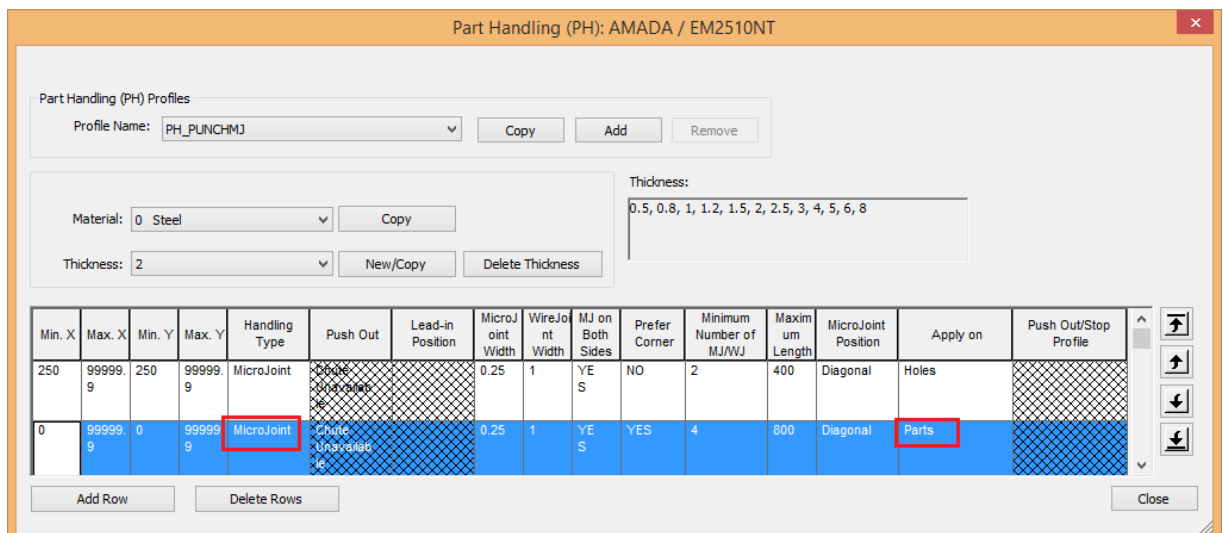
5.18 Use Part Handling Table for Blank Processing

You can cut blanks using the Part Handling table.

1. In **AutoNest**, under the **Nesting** menu => **Blank Parts** => **Create Blank Parts**, in the dialog box, select **Use AutoProcess**:



2. In the **Blanks Unloading** section, click **Use Part Handling** and the **Part Handling Table** button:



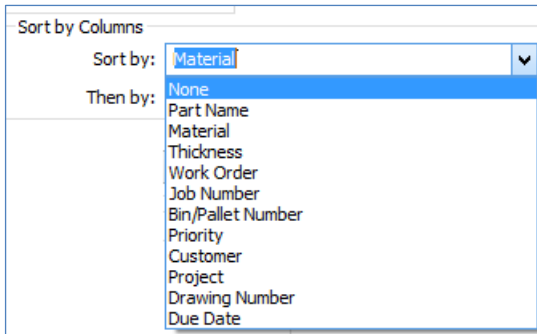
5.19 Show Split Skeleton, Reposition, and Clamp Only When Relevant

When the current machine does not support split skeleton, reposition, and clamp, **AutoNest** does not show these options.

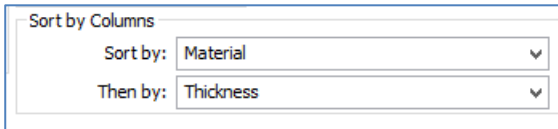
5.20 Sort AutoNest Order Report by Selected Columns

When generating the Order Report, it is now possible to sort the report data by two columns, for primary and secondary sorting. Select the desired columns in the **Settings** menu => **Report Settings** => **AutoNest Report Settings** tab => **Sort by Columns** section.

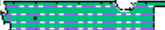




You can select from among the columns visible in the table in the **Edit/Extend Order** dialog box:



For example, sort the columns by material and then by thickness:



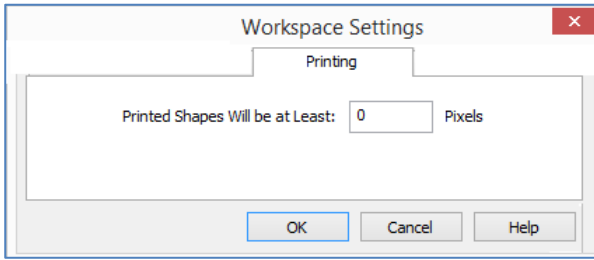
The Order Report shows the parts sorted by material and thickness (in the **Parts in SubNests** section):

			Primary sort ↓	Secondary sort ↓			
13	AN_Laser_Tut2_301.DFT		Aluminium	1	0.209	2	2
14	AN_Laser_Tut2_302.DFT		Aluminium	1	0.012	2	2
3	61A31010022.dft		Aluminium	2	0.012	11	11
5	AN_Laser_Tut2_101.dft		Stainless	1.5	0.931	11	11
6	AN_Laser_Tut2_102.dft		Stainless	1.5	0.039	22	22

5.21 Support Minimum Size when Printing Shapes


In *cncKad*, you can define a minimal pixel size for part images when printing Microsoft Word reports in *AutoNest*.

Do this in *cncKad* in the **Settings** menu => **Workspace Settings** => **Printing** tab:



6 Improved Estimation Data in AutoNest

When you edit or view a daily job in **AutoNest** you can see a detailed view of the entire estimation data of the active daily job.

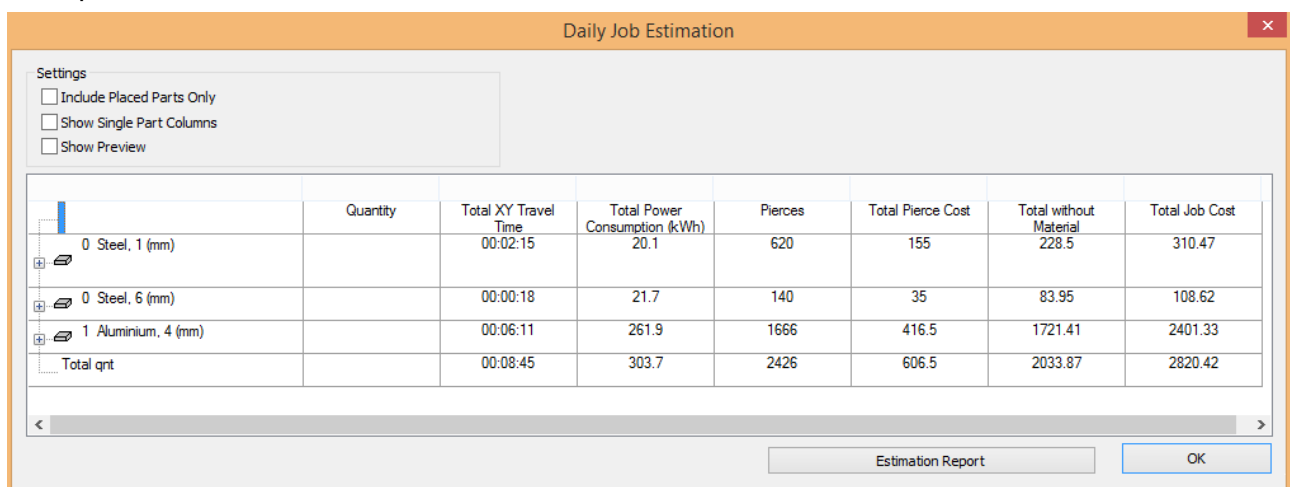
 Relevant only for laser machines.

The **Daily Job Estimation** view provides summarized information on three levels:

- For the entire daily job
- Per material and thickness combination
- For every part

You can actually view a subset of the estimation data even before you run automatic nesting, after you create the daily job and process the parts with **AutoCut**.

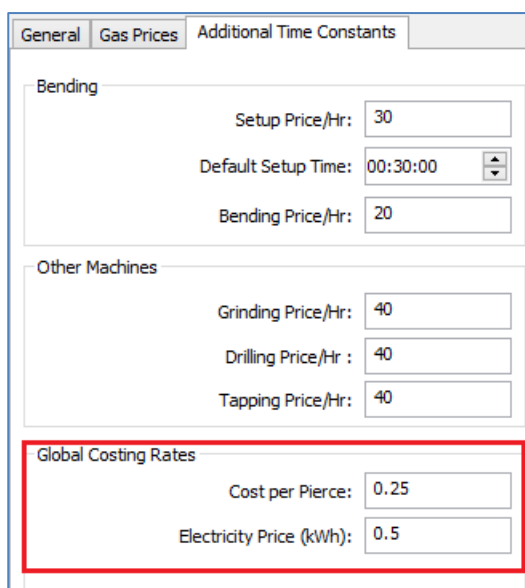
See the initial estimation via the **Estimation** menu => **Daily Job Estimation**. The following example shows three different material-thickness combinations:



	Quantity	Total XY Travel Time	Total Power Consumption (kWh)	Pierces	Total Pierce Cost	Total without Material	Total Job Cost
0 Steel, 1 (mm)		00:02:15	20.1	620	155	228.5	310.47
0 Steel, 6 (mm)		00:00:18	21.7	140	35	83.95	108.62
1 Aluminium, 4 (mm)		00:06:11	261.9	1666	416.5	1721.41	2401.33
Total qnt		00:08:45	303.7	2426	606.5	2033.87	2820.42

To see more detail, add cost data in the **Estimation** menu => **Estimation Settings** dialog box (just like in **cncKad**). Examples:

- Add costs per pierce in the **Additional Time Constants** tab, in the **Global Costing Rates** section:



General | Gas Prices | **Additional Time Constants**

Bending

Setup Price/Hr: 30

Default Setup Time: 00:30:00

Bending Price/Hr: 20

Other Machines

Grinding Price/Hr: 40

Drilling Price/Hr: 40

Tapping Price/Hr: 40

Global Costing Rates

Cost per Pierce: 0.25

Electricity Price (kWh): 0.5

- Add cost for gas in the **Gas Prices** tab:

Gas Prices		
Gas	Price per m ³	Price per Ton
N2	4.00	3314.00
O2	5.00	4142.50
AIR	6.00	4971.00
N2H	4.00	3314.00
O2H	5.00	4142.50
AIRH	6.00	4971.00

Once you have processed some or all of the parts, you can see the calculations. In the **Estimation** menu => **Daily Job Estimation** dialog box:

- View all the estimated costs.
- Filter the estimation data, displaying data only for the nested parts, by checking **Include Placed Parts Only**.
- By default, the estimation displays the cost for the total number of each part. Display the detailed cost estimate for single parts by checking **Show Single Part Columns**.
- View a preview of the currently selected part by checking **Show Preview** in the **Daily Job Estimation** dialog box.

This is how all these options selected together might look:

The screenshot shows the 'Daily Job Estimation' dialog box with the following settings checked: 'Include Placed Parts Only', 'Show Single Part Columns', and 'Show Preview'. The main table displays various columns including Weight Gross (kg), Material Cost, Cutting Time, XY Travel Time, Power onsumptic (kWh), Cutting Cost, Gas Cost, Pierce Cost, Cost without Material, Cost per Part, Quantity, Total XY Travel Time, Total Power onsumptic, Pierces, Total Pierce Cost, Total without Material, and Total Job Cost. A preview window is open over the table, showing a yellow outline of a part on a black background. The preview window title is '61A22040004.dft (1401.14 X 608.46) MITSUBISHI / ML2512EX' and it contains the text 'Steel, 1 (mm), Gas: O2'. Below the preview are buttons for 'Hide Preview', 'Hide CAM', and 'OK'.

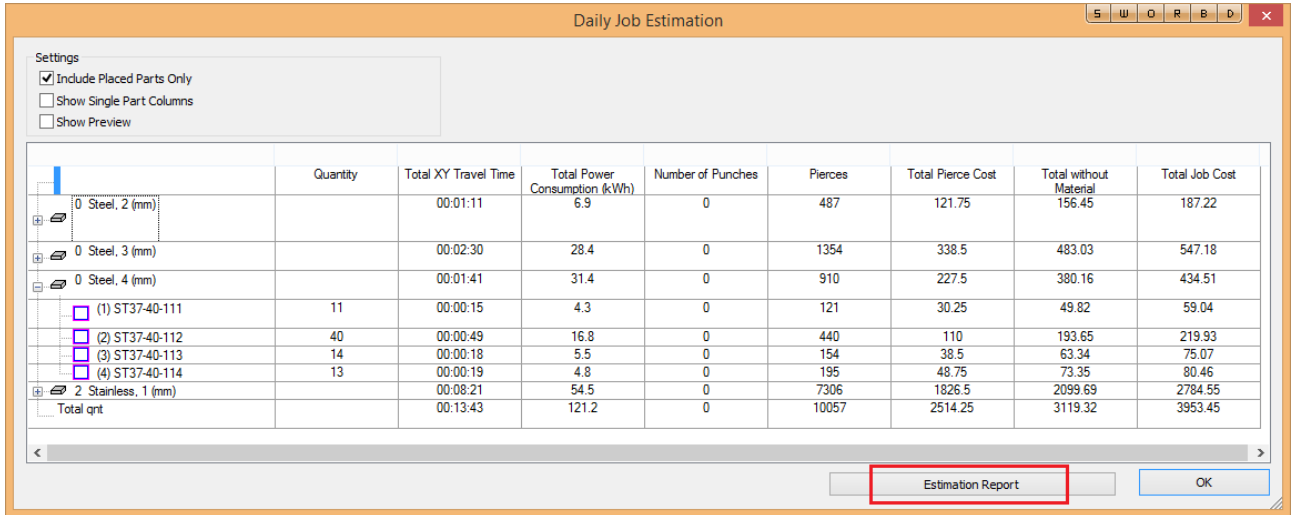
You can create a report of the estimated costs:

1. Select a report template -- In the **Settings** menu => **Report Settings** => **Daily Job Estimation Report** tab, select a report template from the **File Name** dropdown list and click **OK**:

The screenshot shows the 'Daily Job Estimation Report' dialog box. It has a section titled 'Estimation Report Template' with a 'File Name:' label and a dropdown menu. The dropdown menu is open, showing three options: 'RPT_AN_EST_ENG_LANDSCAPE.xlsx', 'RPT_AN_EST_ENG_Landscape.doc', and 'RPT_AN_EST_ENG_LANDSCAPE.xlsx'. An 'Edit' button is located to the right of the dropdown menu.

- You can make changes to the template by clicking the **Edit** button.

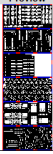
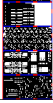




- From the **Estimation** menu, select **Daily Job Estimation**. In the **Daily Job Estimation** dialog box, click the **Estimation Report** button:



Your report opens automatically. Below is a sample report:

No.	Part file name	Preview	Material	Thickness	Cutting time	Part cost without material	Part cost	Required quantity	Placed quantity	Total cutting time	Total cost without material	Total job cost
5	ST37-20-115.DFT		Steel	2	00:00:05	0.69	0.73	20	1	00:00:05	0.69	0.73
14	ST37-20-124.DFT		Steel	2	00:01:22	8.94	9.78	20	1	00:01:22	8.94	9.78
22	ST37-20-132.DFT		Steel	2	00:00:09	1.1	1.31	40	2	00:00:18	2.2	2.62
24	ST37-20-134.DFT		Steel	2	00:00:15	2.35	2.67	40	2	00:00:31	4.71	5.34
29	ST37-20-139.DFT		Steel	2	00:00:02	0.34	0.35	40	7	00:00:16	2.37	2.45

Daily Job Estimation												
Material	Thickness	Total cutting time	Total XY travel time	Total power consumption (KW)	Total cutting cost	Total weight gross (kg)	Total material cost	Total gas cost	Pierces	Total pierce cost	Total cost without material	Total job cost
Steel	2	00:14.47	00:01:11	6.9	33.03	43.96	30.77	1.66	487	121.75	156.45	187.22
Steel	3	01:03.12	00:02:30	28.4	140.68	91.63	64.14	3.95	1354	338.5	483.03	547.18
Steel	4	01:05.53	00:01:41	31.4	147.45	77.64	54.35	5.21	910	227.5	380.16	434.51
Stainless	1	01:41.48	00:08:21	54.5	230.87	124.53	834.86	42.32	7306	1628.5	2099.69	2784.55
Total		04:05:40	00:13:43	121.2	551.93	337.76	834.12	53.14	10057	2514.25	3119.32	3953.45

SubNests in Order									
No.	Preview	Size X (mm)	Size Y (mm)	Material	Thickness (mm)	Efficiency %	Time per instance	Total time	Quantity
1		2500	1250	Steel	2	90.178	00:28:24	00:28:24	1
2		2500	1250	Steel	3	68.005	00:42:43	00:42:43	1
3		2500	1250	Steel	3	52.091	00:32:26	00:32:26	1
4		2500	1250	Steel	4	59.271	01:15:37	01:15:37	1
5		2500	1250	Stainless	1	86.79	00:17:59	01:29:54	5
6		2500	1250	Stainless	1	73.038	00:12:09	00:12:09	1

Part name/SubNest number	1	2	3	4	5	6	7
Part							

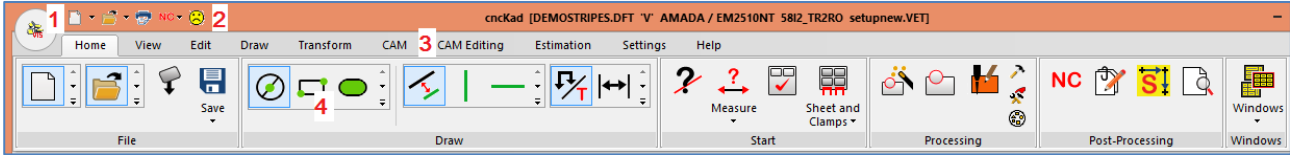
Material Data						
Material	Thickness	Efficiency %	Skeleton %	Part weight (KG)	Left weight (KG)	Total weight (KG)
Steel	2	90.18	9.82	43.962	4.788	48.75
Steel	3	60.05	39.95	87.82	58.43	146.25
Steel	4	59.27	40.73	57.789	39.711	97.5
Stainless	1	84.5	15.5	123.579	22.671	146.25

7 New Ribbon Interface

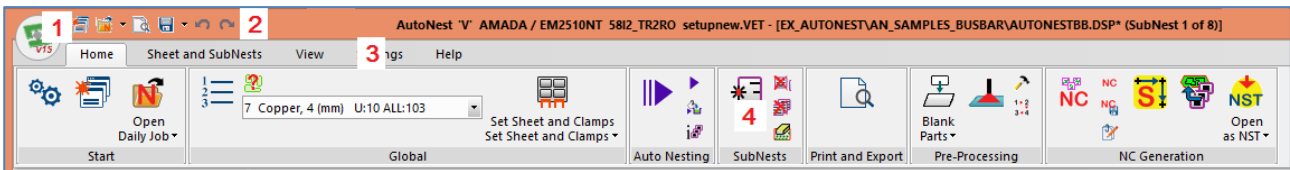
The *cncKad* and *AutoNest* interfaces now include modular ribbons.

In the **Settings** menu, select **Ribbon Mode**. The ribbon interface opens. The options in the ribbon change, depending on what you are working and the tab you select (3).

In a typical ribbon in *cncKad*, this is what you might see:



In a typical ribbon in *AutoNest*, this is what you might see:



These are the sections in the ribbons:

- (1) Options often found in the **File** menu, including **New**, **Open**, **Save**, **Print**.
- (2) The Quick Access Toolbar.
- (3) Tabs. As you select different tabs, the options in the ribbon change.
- (4) A group:
 - In the *cncKad* example, the **Start** group contains options for **Ask**, **Measure**, **Sheet and Clamps**, etc.
 - In the *AutoNest* example, the **SubNests** group contains options for **New SubNest**, **Delete SubNest**, **Delete All**, etc.
 - Can also contain dropdown menus.



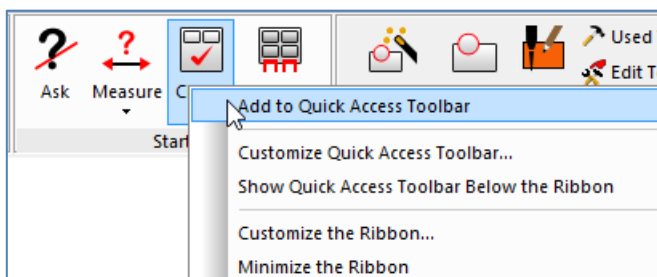
To revert to the toolbar interface, in the **Settings** ribbon, click the **Toolbar Mode** icon.

7.1 Managing the Quick Access Toolbar

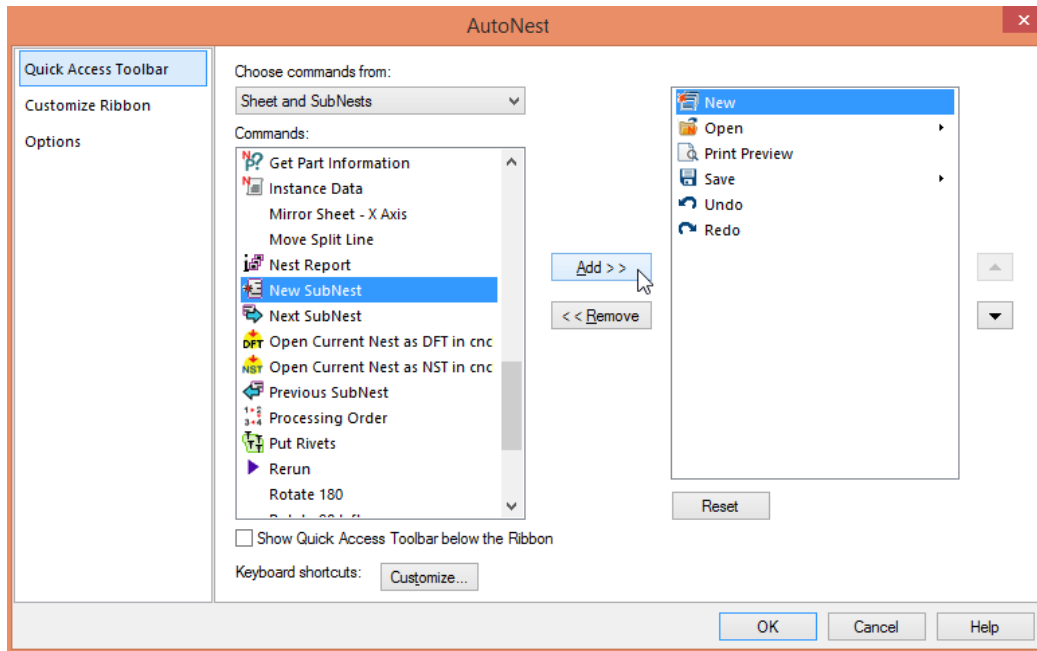
You can situate the Quick Access Toolbar above or below the ribbon. Right click the Quick Access Toolbar and select **Show Quick Access Toolbar Above/Below the Ribbon**.

To add an option to the Quick Access Toolbar:

- Right click the icon in a group on the toolbar and select **Add to Quick Access Toolbar**:

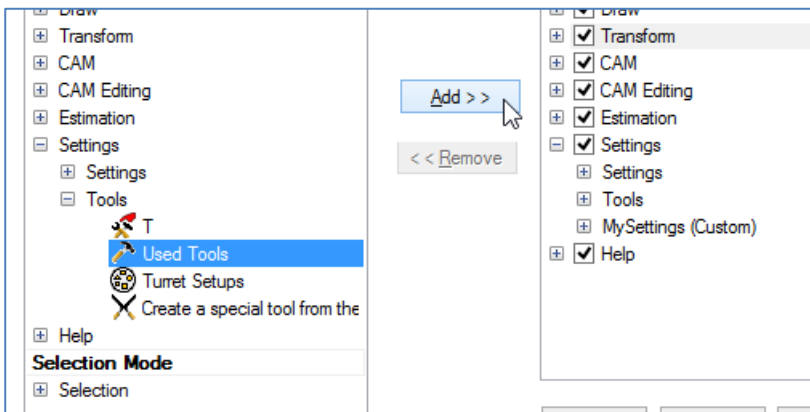


- Right click a ribbon and select **Customize Quick Access Toolbar**. Choose from where to select a command, find the command, click **Add** and **OK**:



7.2 Customizing the Ribbon

You can add and delete icons from a ribbon. Right click a ribbon and select **Customize the Ribbon**. Choose from where to select a command, find the command, click **Add**, and **OK**.

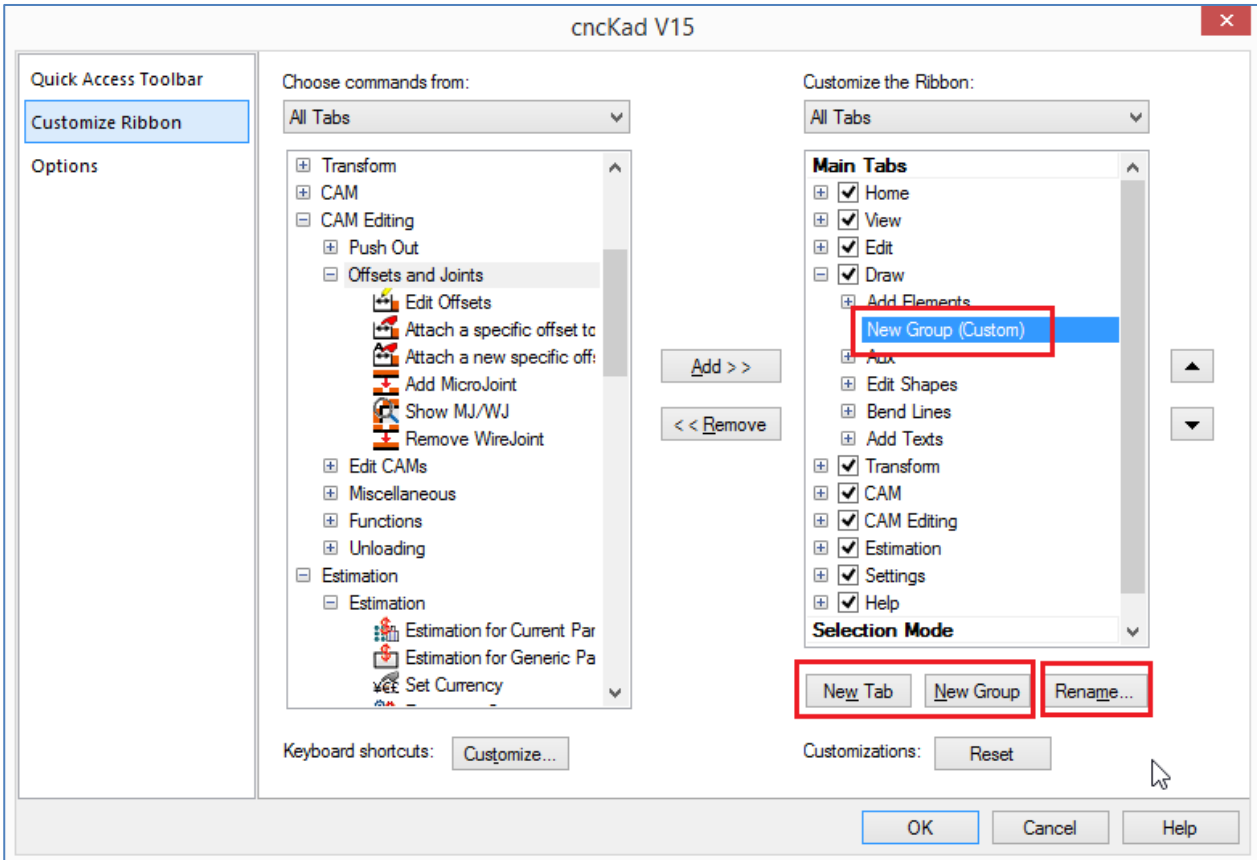


To revert to the default ribbon interface, in the same dialog box, click the **Reset** button.

7.3 Creating Tabs and Groups

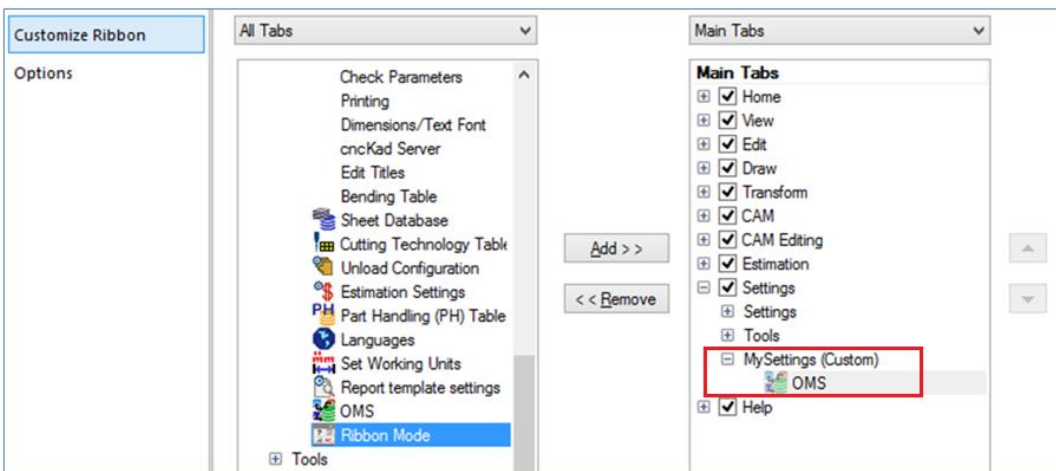
You can create your own tabs and groups, and add icons to them.

Right click a ribbon and select **Customize the Ribbon**. Click the **New Tab** or **New Group** buttons:



Select one item at a time from the list on the left and click **Add** to add to the new tab/group.

Give the new tab/group a meaningful name by selecting it, clicking the **Rename** button, and typing a name:



7.4 Minimizing the Ribbon

Right click a ribbon and select **Minimize the Ribbon**.

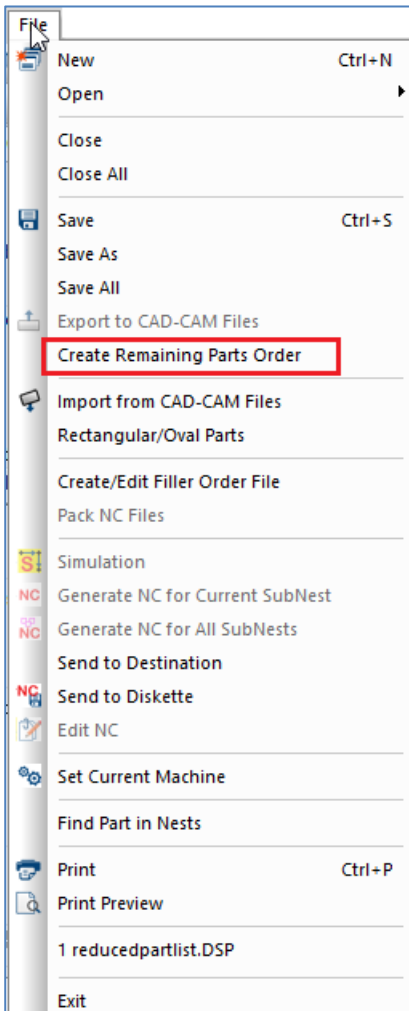
To maximize it, right click anywhere at the top of the screen and deselect **Minimize the Ribbon**.

8 New in ORD/CSV Processing

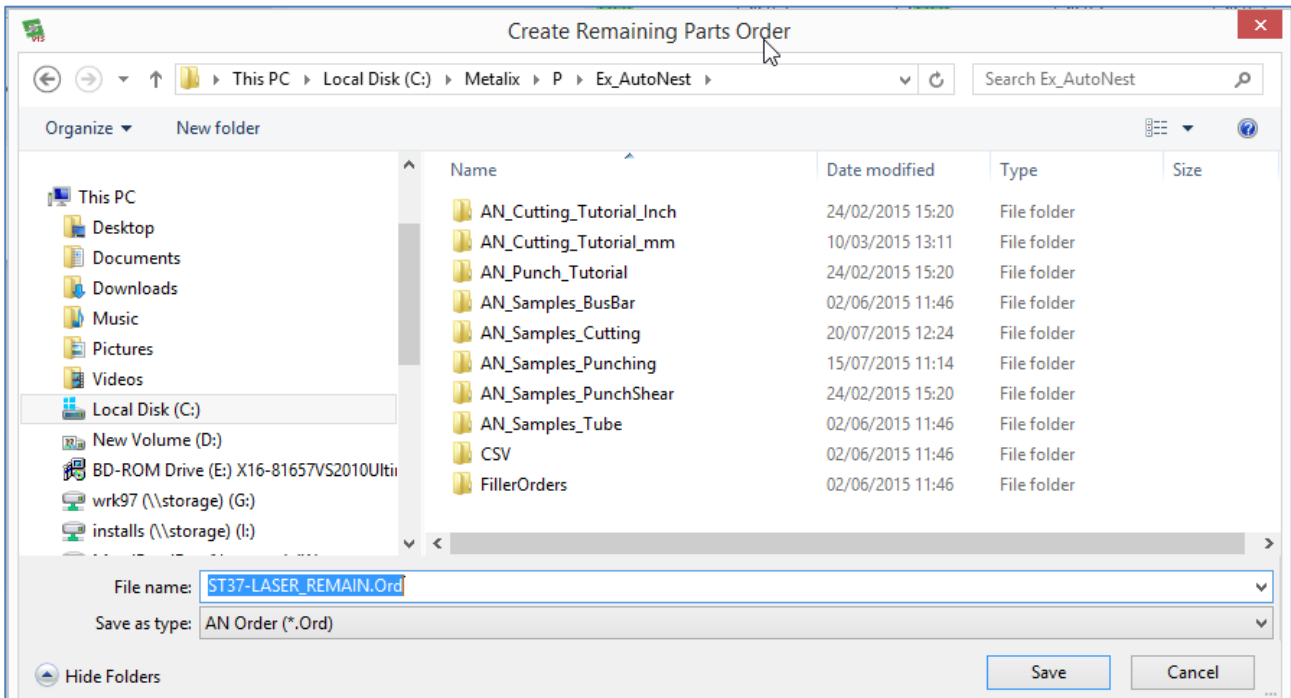
8.1 Create Remaining Parts Order in AutoNest

You can create an order file (.ORD) that contains all the remaining parts of an existing daily job. This command works also for daily jobs for tubes, busbars, etc.

Select the **Create Remaining Parts Order** option from the **File** menu:



The **Create Remaining Parts Order** dialog box opens. Type a file name:

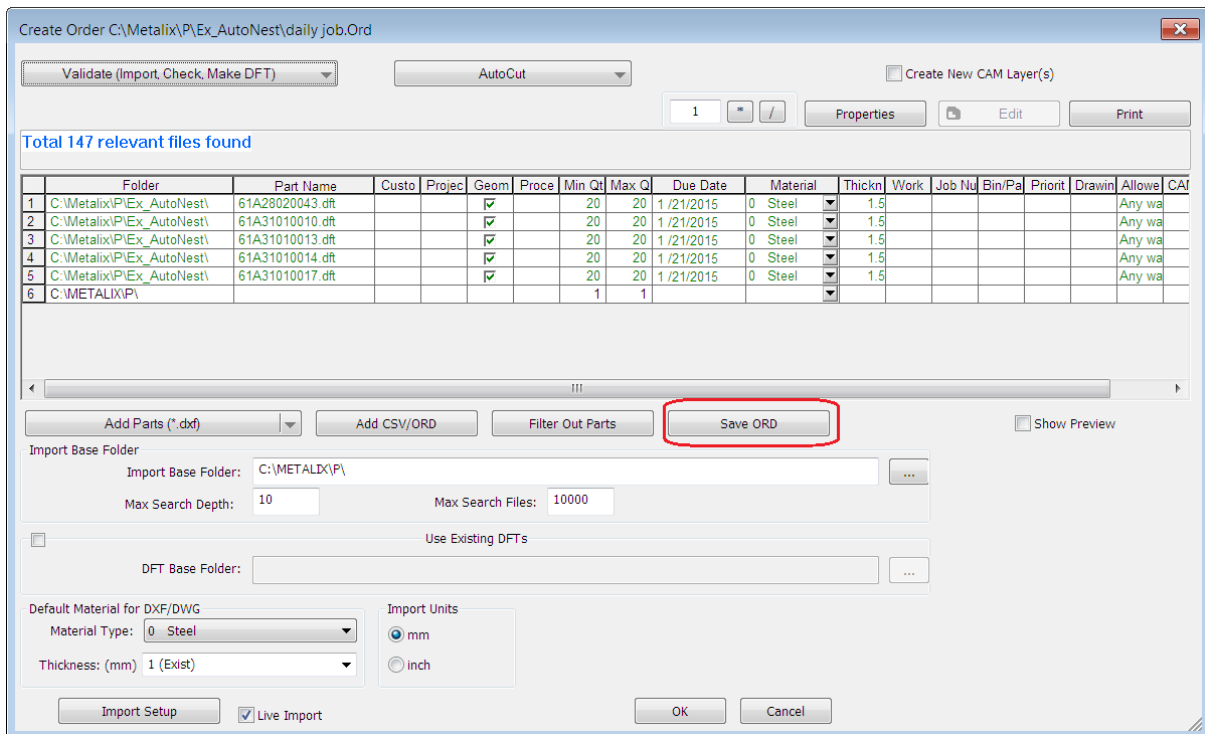


AutoNest automatically adds **_REMAIN** to the file name so it does not overwrite the file you have already saved.

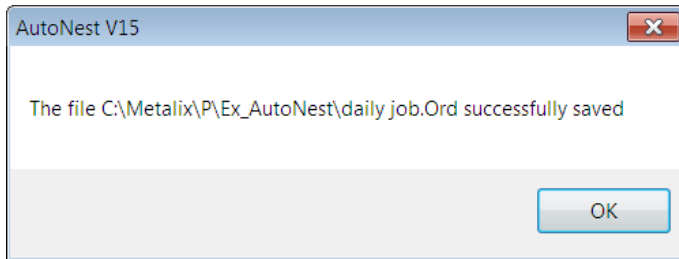
8.2 Save Daily Job Data without Exiting Dialog Box

In **AutoNest**, when working on a daily job, you can apply and save all the changes without exiting the **Create Order** dialog box.

In the **Create Order** dialog box (shown when you do **File => New**, etc.), click the **Save ORD** button:



The following message appears:



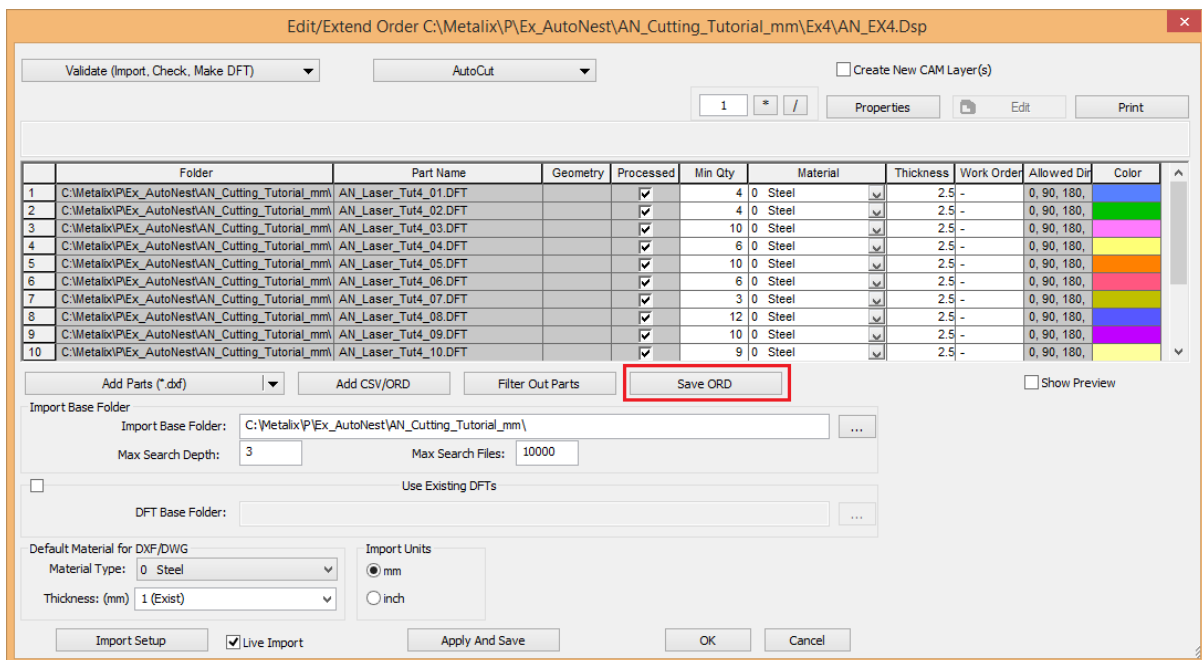
Click the **OK** button to return to the **Create Order** dialog box (Daily Job).

8.3 Save Current Daily Job as ORD File

You can save the current daily job as an order file, no matter how it was loaded: as an ORD, CSV, or confirmed daily job (DSP) file.

⚠ *AutoNest* saves the entire daily job, even if the part list was open for a specific material.

To save as ORD, in the **Edit/Extend Order** dialog box (accessible via the **Part** menu => **Qty. Order**), click the **Save ORD** button below the part list:



8.4 Enable Zero Value for Part Quantity

💡 This option is helpful for supporting filler parts, and applies to both CSV and ORD file types.

When you create a daily job order in *AutoNest*, you can now set zero as the minimum part quantity. In this way, filler parts are included in the order but are only nested after you finish nesting the main parts.

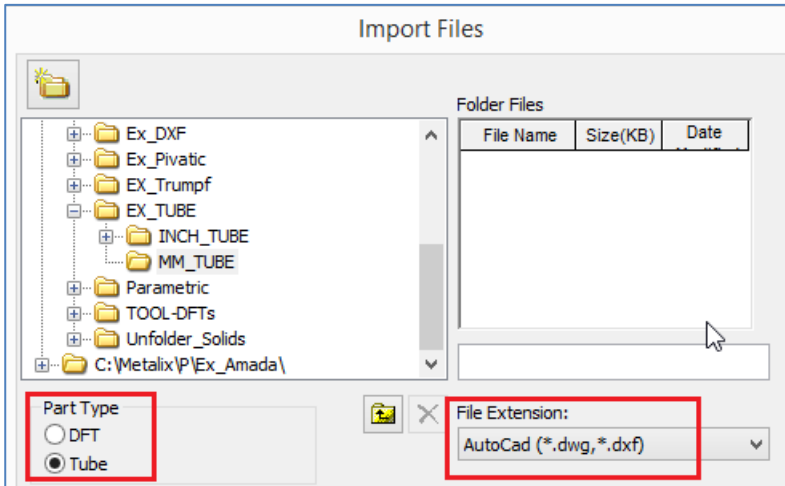
⚠ When loading a CSV order file, if the minimum quantity is zero, then the maximum quantity must be specified as **GREATER** than zero.

9 New in Tubes

9.1 Import Tube Parts from DXF Files

cncKad allows you to import tube parts from DXF files. The DXF must contain a valid geometry of the unfolded tube part; otherwise, the result is unpredictable.

In the **Import Files** dialog box (accessible from the **File** menu => **Import**), in the **File Extension** section, select **AutoCad (*.dwg, *.dxf)**. In the **Part Type** section, select **Tube**:



9.2 Improved Tube Link

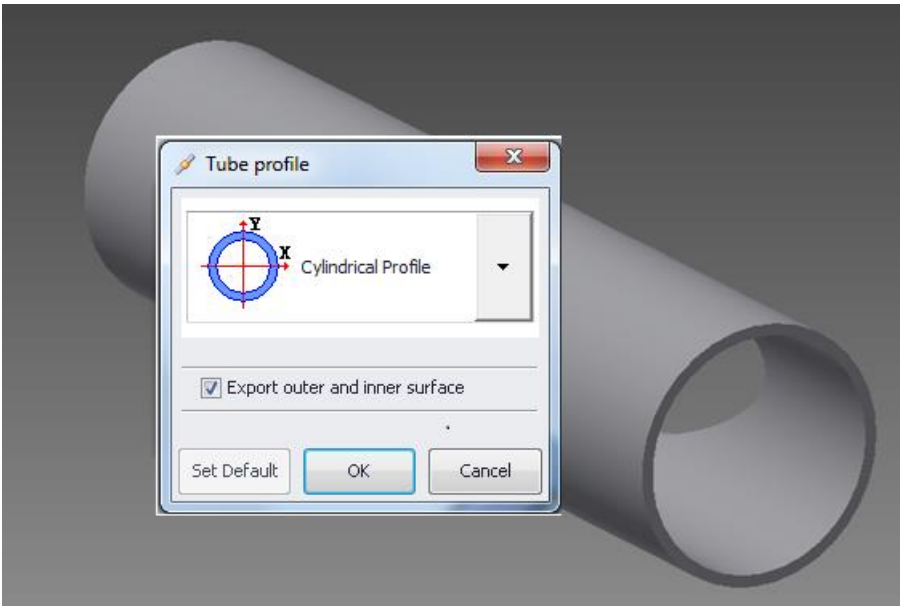
CAD Link now imports tubes to **cncKad** without flattening (unfolding) them. It also imports tubes with open rectangular profiles.

9.2.1 Import Tubes without Flattening

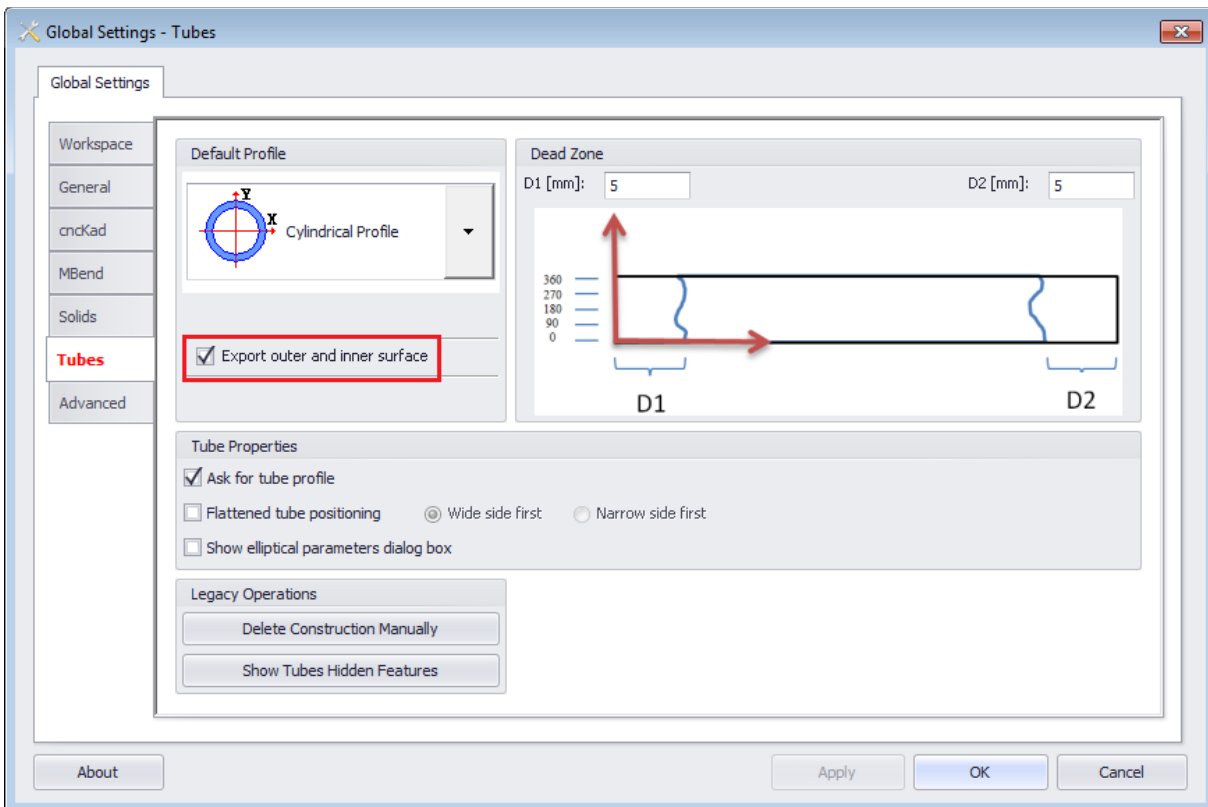
CAD Link can import tubes to **cncKad** without flattening (unfolding) them, making the import process faster and less prone to errors.

Supported profiles may be rectangular, circular, elliptical, obround, and custom. (Custom profiles are any closed freeform profile.)

In addition to importing the outer surface, for more precise cutting you can now import the inner surface. In **CAD Link**, select the **Export Outer and Inner Surface** option in the **Tube Profile** dialog box (accessible when you click the **Tube Export** icon):

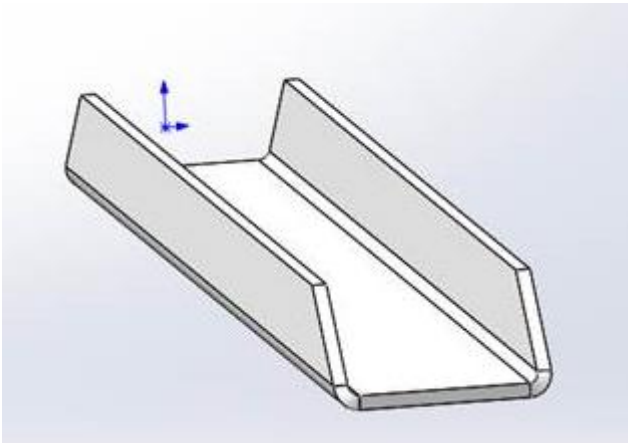


You can set **Export Outer and Inner Surface** as the default in **Global Settings => Tubes** in the Solid programs:



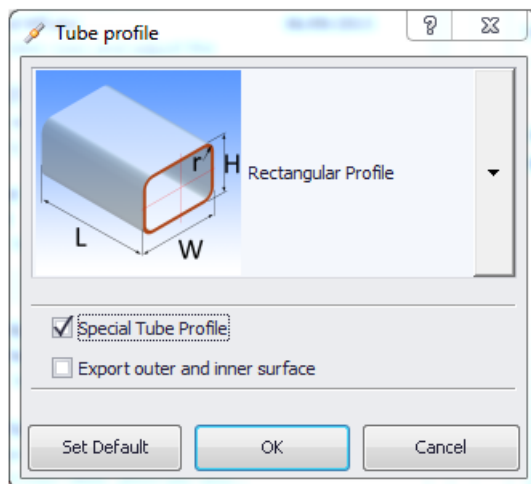
9.2.2 Export Open Rectangular Profiles

CAD Link can export tubes with the following open rectangular profile:

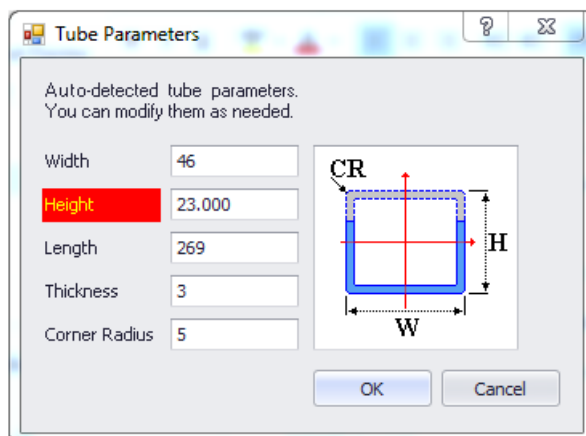


To use it:

1. In **CAD Link**, click the **Tube Export** icon. In the **Tube Profile** dialog box, select the **Rectangular Profile** and check the **Special Tube Profile** option as shown:



2. Click **OK**. The **Tube Parameters** dialog box opens. Type the height for this profile:



- The height is highlighted in red because this is the only field that is not imported, so this is the field you will be most likely to change. All the other fields are imported, and you can change them.

3. To complete the export, click **OK**.

9.3 View Tube Simulation in 3D

cncKad now supports 3D simulation for tubes.

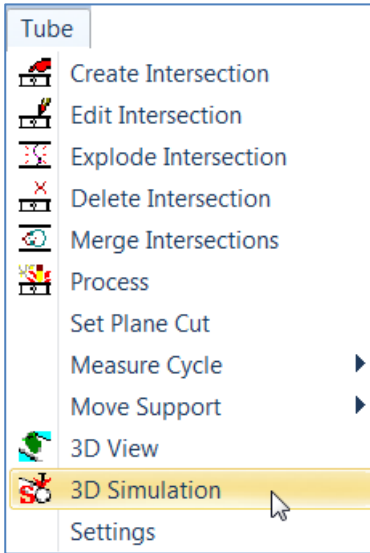
3D simulation is already available for Hans and Mitsubishi machines.

To see 3D simulation on other machines, add the following key to the machine MDL file:

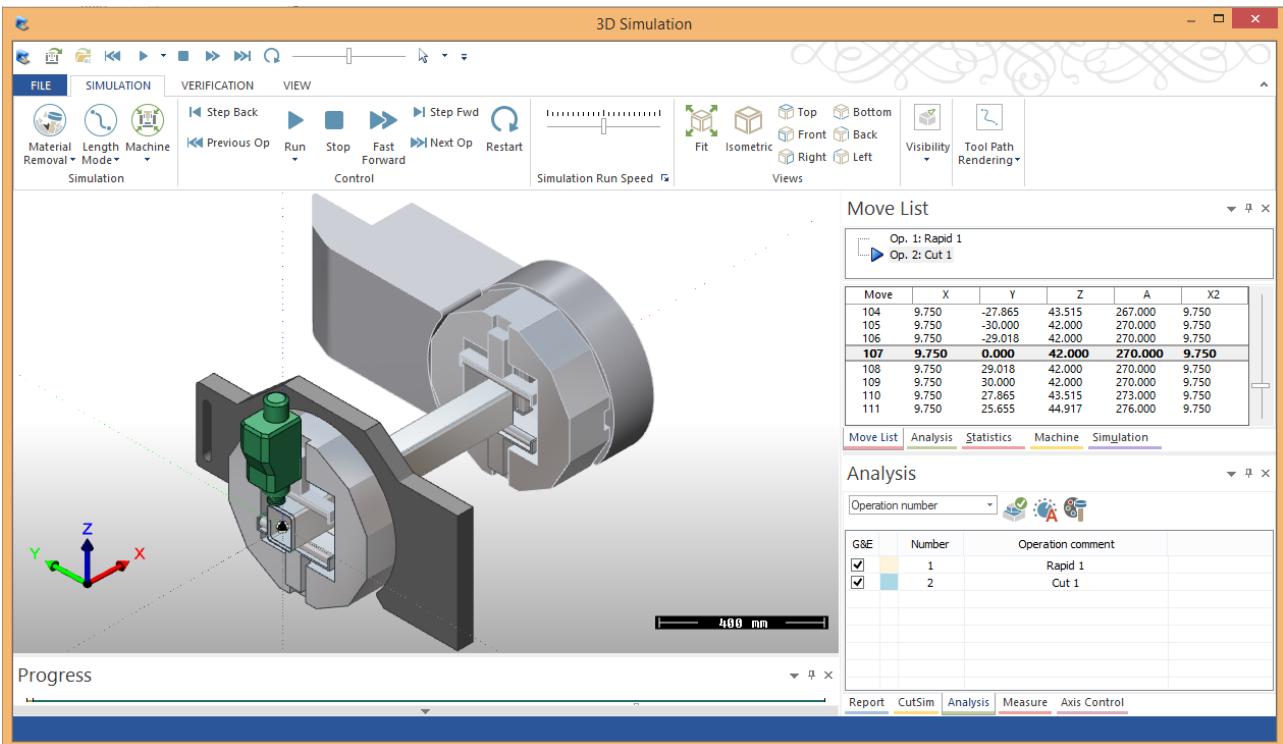
```
[3DSimulation]
```

```
Sim3DFileName=<SimulationFilename.xml>
```

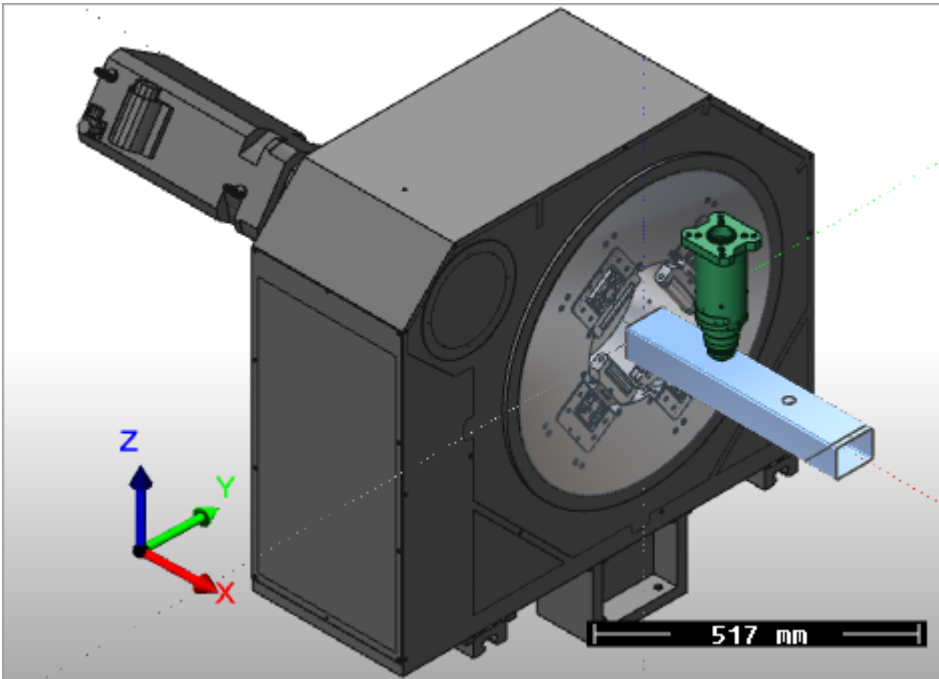
In **cncKad**, in the **Tube** menu, choose the **3D Simulation** option:



The tube's **3D Simulation** screen opens:



Here you can watch the tube cutting simulation in 3D, including tube rotation and laser head movements:

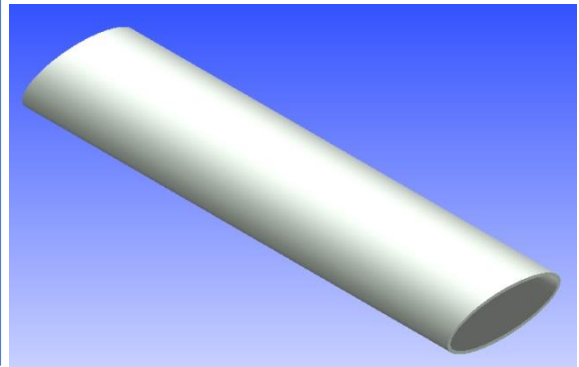
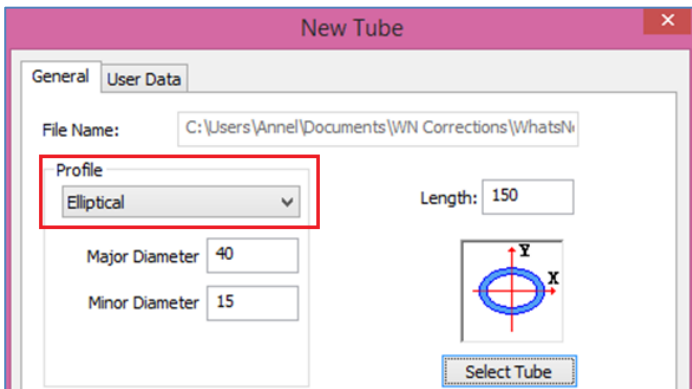


9.4 Create Elliptical Tubes

You can now create elliptical tubes in *cncKad*.

Go to the **File** menu => **New** => **New Tube**, and in **Profile** select **Elliptical** from the dropdown list.

This is an example of an elliptical tube created in *cncKad*:

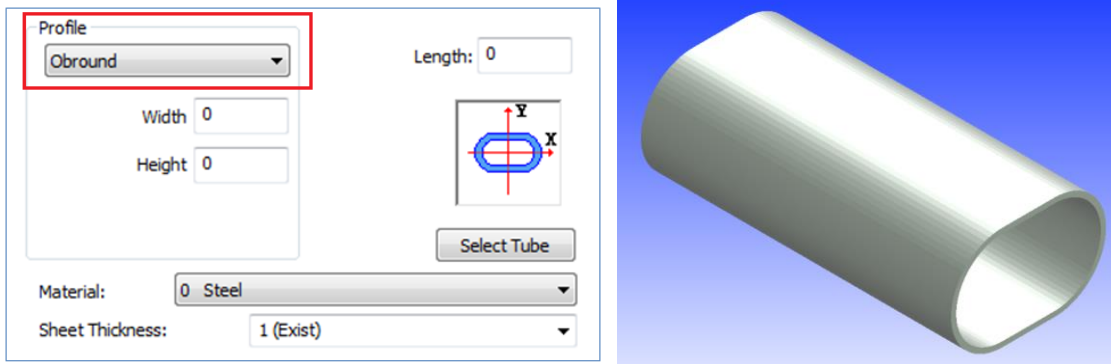


9.5 Create Obround Tubes

You can now create obround tube parts in *cncKad*.

In the **File** menu, select the **New Tube** option, and in **Profile** select **Obround** from the dropdown list.

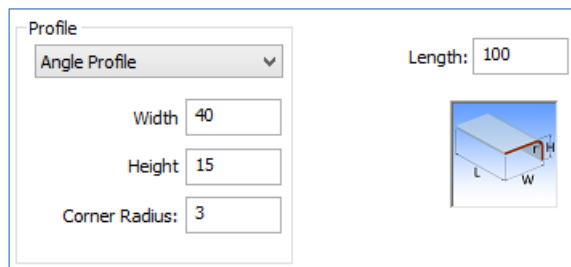
This is an example of an obround tube created in **cncKad**:



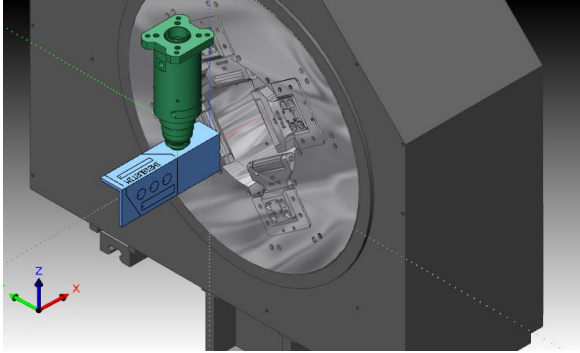
9.6 Create Angle and Channel Tube Profiles

cncKad now supports these tube profiles:

- Angle profile (L shape):



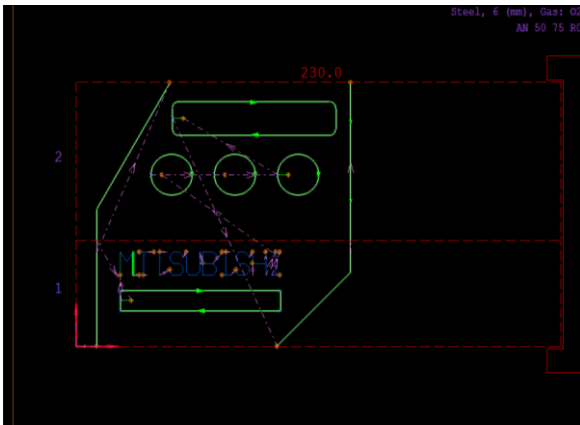
In 3D simulation:



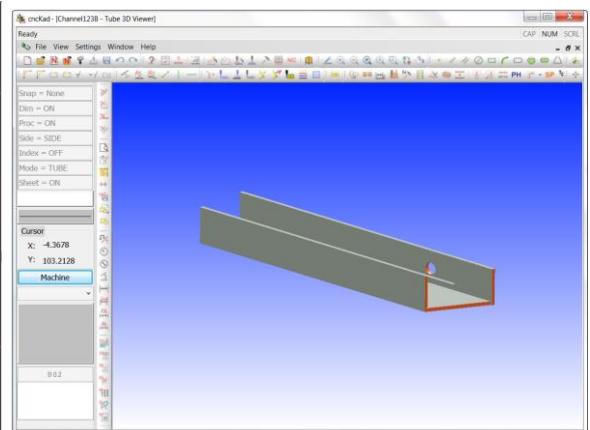
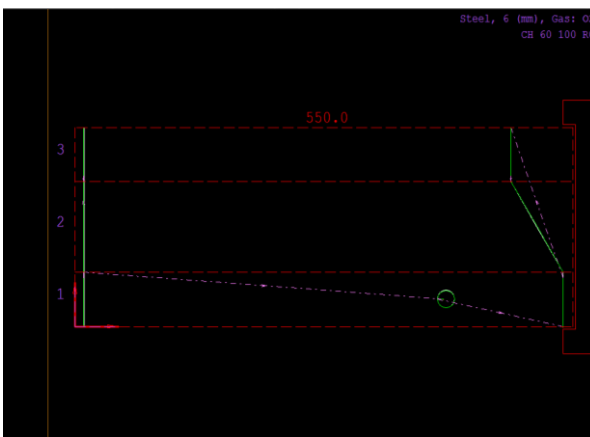
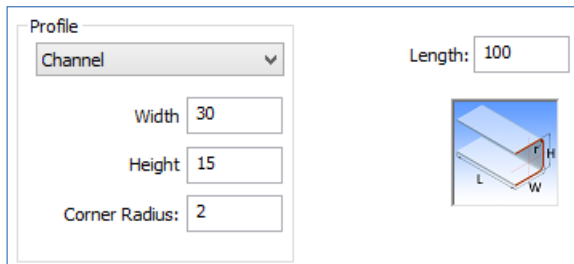
A different angle profile



In *cncKad*:



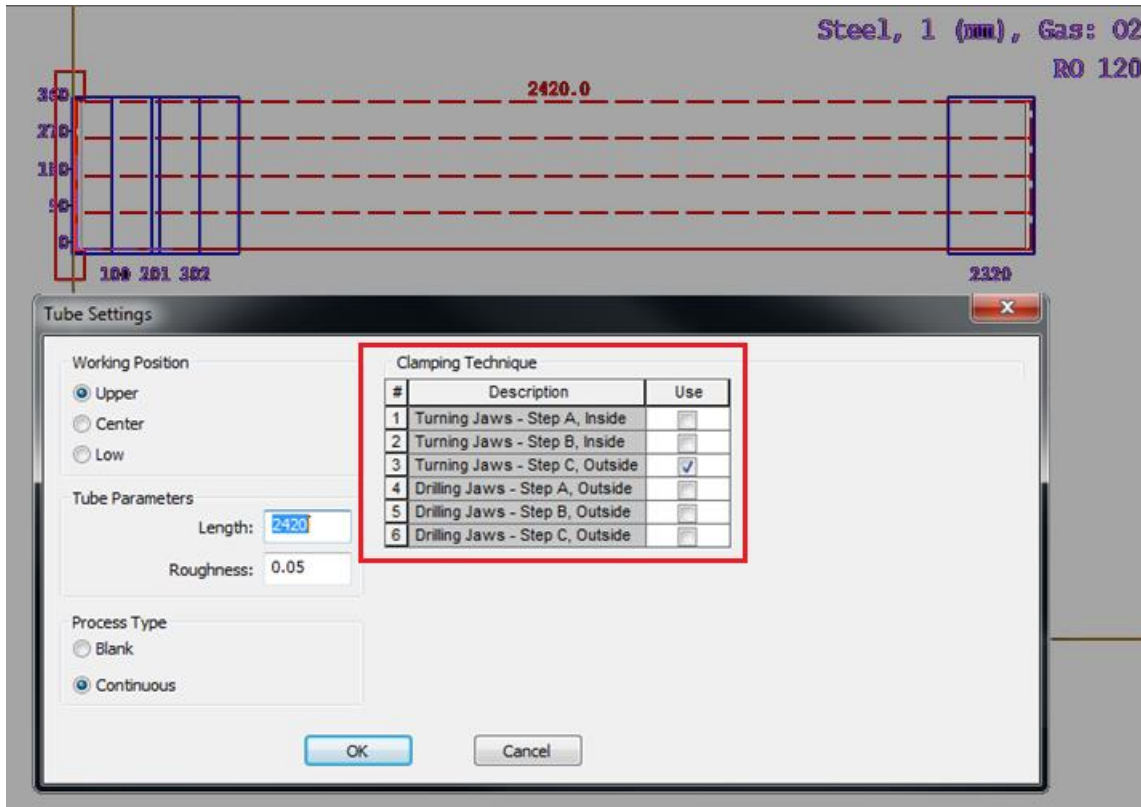
- Channel (U shape):



9.7 Support Flexible Tube Clamping Techniques

cnckad now supports Trumpf RotoLas machines.

When you work with tubes, you can use any number of clamping techniques, according to the settings in the machine model file (.MDL). The picture below shows available clamping techniques such as **Turning Jaws** and **Drilling Jaws** (from the **Tube** menu => **Settings**):



Pick the one you want.

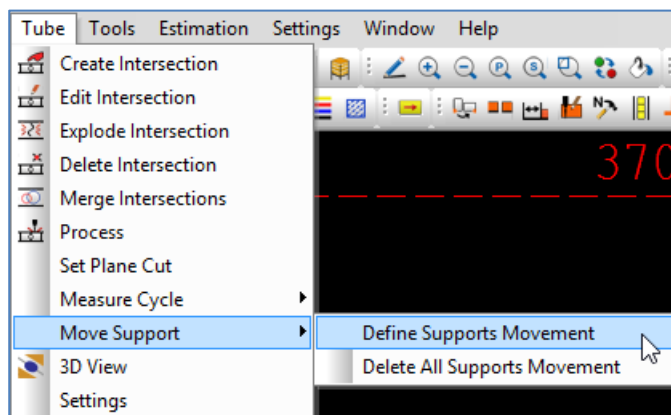
In addition, *cnckad* supports additional parameters in the MDL file for each clamping technique such as the name on the machine.

9.8 Move Tube Supports

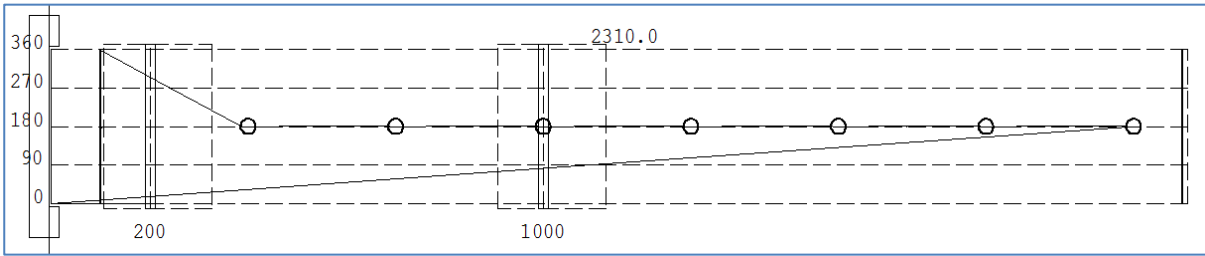
 This feature applies specifically to Trumpf RotoLas III machines.

You can move the tube supports as often as required and in any direction.

In the **Tube** menu => **Move Support**, select **Define Support Movement**:



This picture shows two supports:



To delete the tube supports movement, in the **Tube** menu => **Move Support**, select **Delete All Supports Movement**.

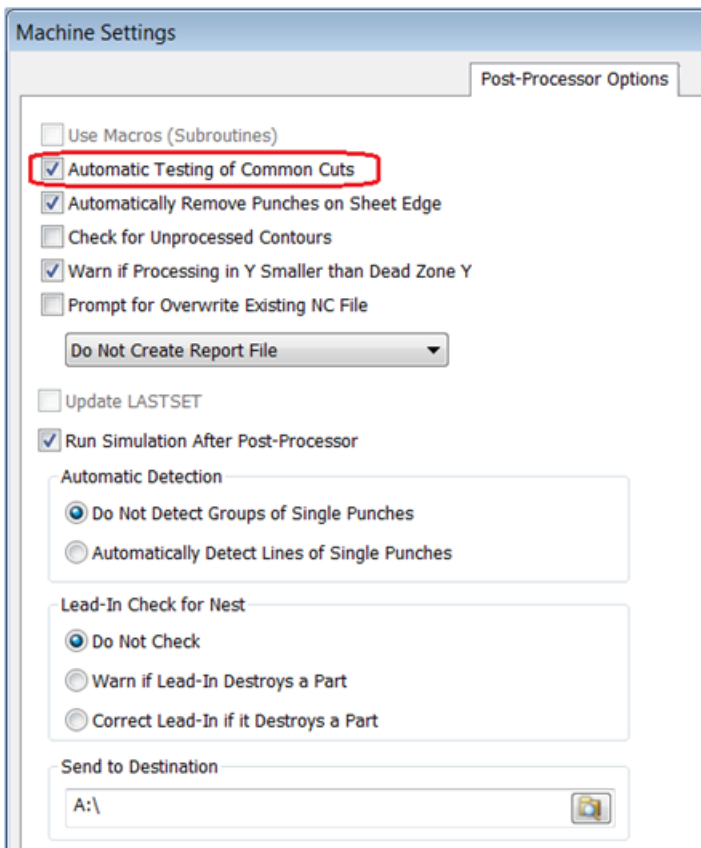
9.9 Allow Dead Zone for Circular Tube Supports

cncKad now allows an automatic dead zone for supports of circular tubes.

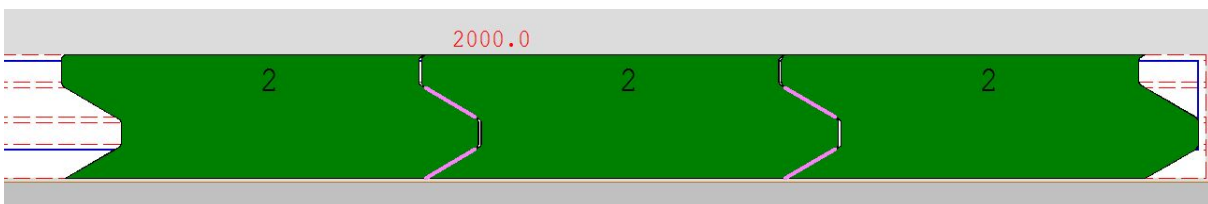
9.10 Generate Common Cuts for Tubes

AutoNest can now generate common cuts automatically for any shape tubes, when the distance between tubes is exactly the thickness of the beam (determined by the buffer in **AutoNest**).

Select **Automatic Testing of Common Cuts** as the default in the **Settings** menu => **Machine Settings** => **Post-Processor Options** tab:



The picture shows the common cuts in pink:

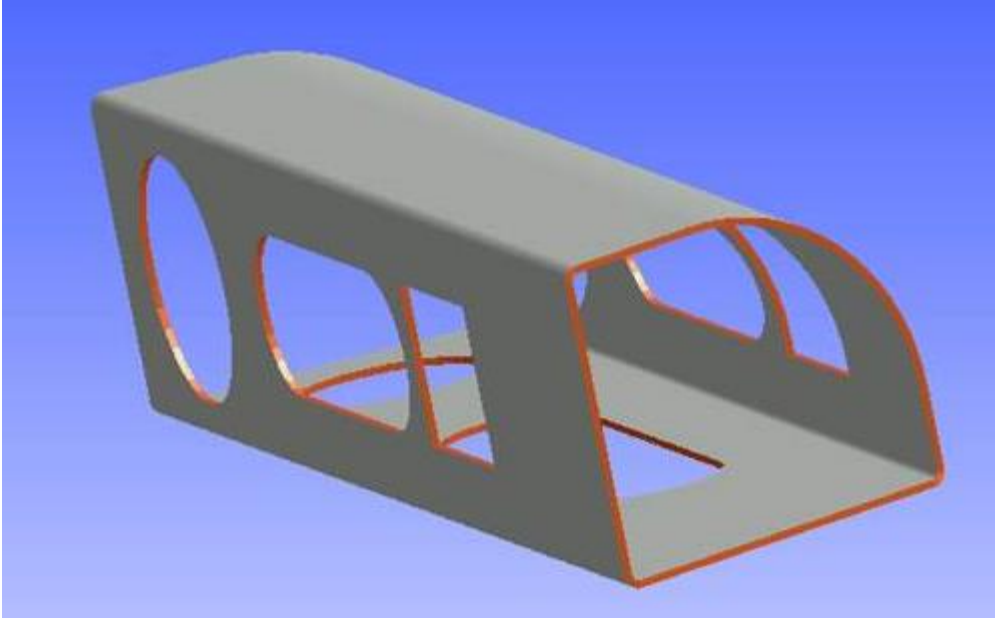


9.11 View Custom Tubes in 3D View

You can now use **cnckad**'s three-dimensional (3D) view to examine custom tubes. Custom profiles are any closed freeform profile (either imported or generated in **cnckad**).

In **cnckad**, in the **Tube** menu, choose the **3D View** option.

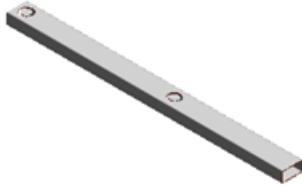
For example:



9.12 Add 3D Part Preview to Reports


You can add a three-dimensional preview of the part to your reports. It is relevant both for single parts and for nests.

This sample report was created for a single part, with a new token added at the top:

File:5555555555.TUB		Date:JUL 27 2015	
			
PART			
NC file name: 5555555555.VNC		Customer:	
Draft no.:		Version:	
Order no.:	Description:		
Tube	Number of Tubes: 1		
Tube: RE 50 25 R4	Tube length: 2000.0	Thk.= 2.0	
Material: Stee1	Used size: 1937.		
Tube weight: 1.416 kg	Num of Tubes: 3, 3 X 1		
MACHINE MODEL: ML_HV2R_TUBE			
PROGRAM			
Number: 1010	Length: 36128	Programmer:	
Notes:			
JOB TIME (min.sec)			
Travel: 00:06	Cut: 00:25	Pierce: 00:06	
Travel way: 3597.9	Cutting way: 1563.79	Pierce qty.: 15	
Total time: 00:53			
	Tube name	Tube length	Qty.
1	5555555555	634.	3

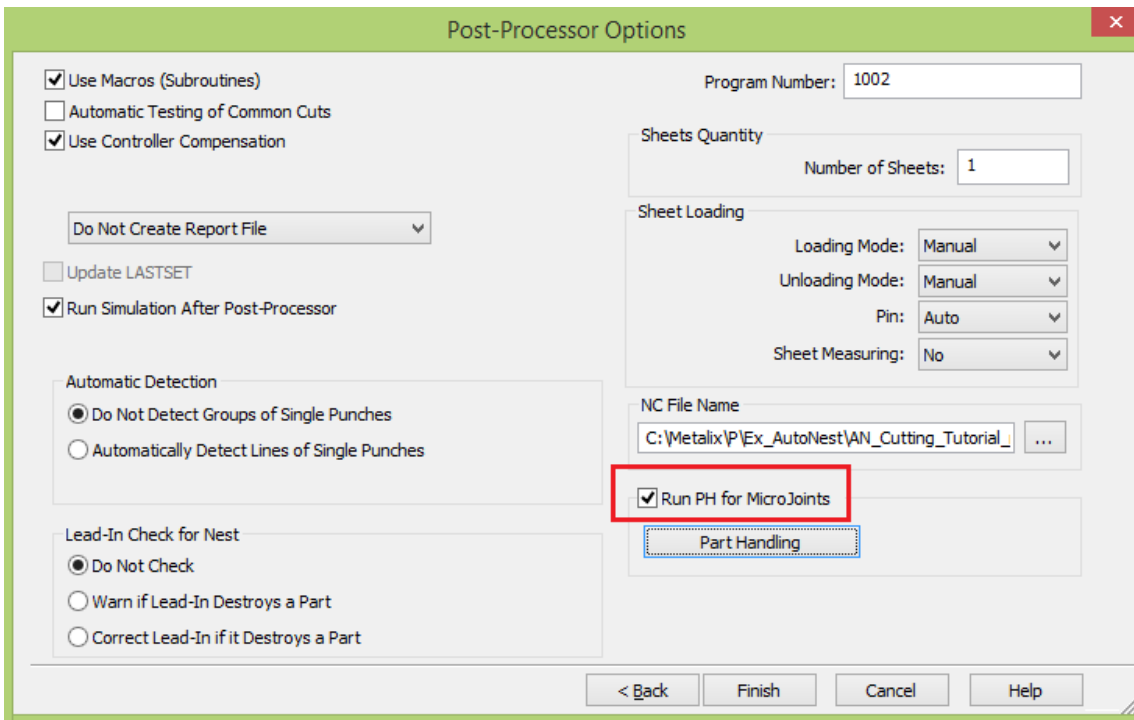
10 New in Post-Processing

10.1 Run Part Handling for MicroJoints

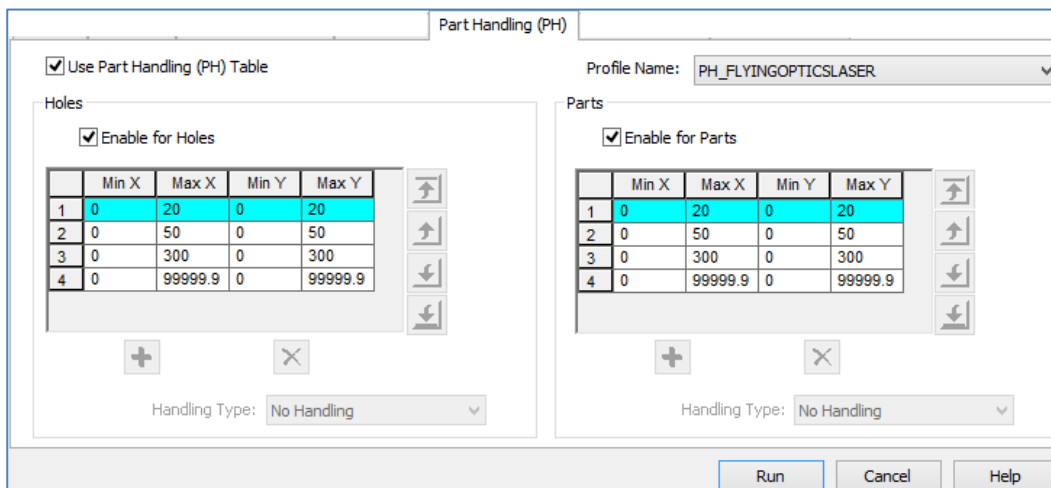
 Only relevant for cutting machines.

You can run part handling (PH) only for MicroJoints. When you do, **cncKad** removes any existing MicroJoints on the parts, and configures the parts according to the PH definitions.

To do this, when generating NC, in the **Post-Processor Options** dialog box, check **Run PH for MicroJoints**:



To activate or edit the part handling settings, click the **Part Handling** button:



You can set **cncKad** to run PH for MJ as the default. In the **Settings** menu => **Machine Settings** => **Post-Processor Options** tab, indicate your choices, and check **Run PH for MicroJoints**.

10.2 Test Common Cuts for Rectangular Tools of Same Height

cncKad now automatically tests common cuts for different rectangular punch tools that have the same height (the same Y). *cncKad* chooses one of the tools and creates a common punch, recalculating the MicroJoints.

10.3 Support for Finn-Power Tulus Controller

cncKad supports the option to display part geometry on the Tulus controller.

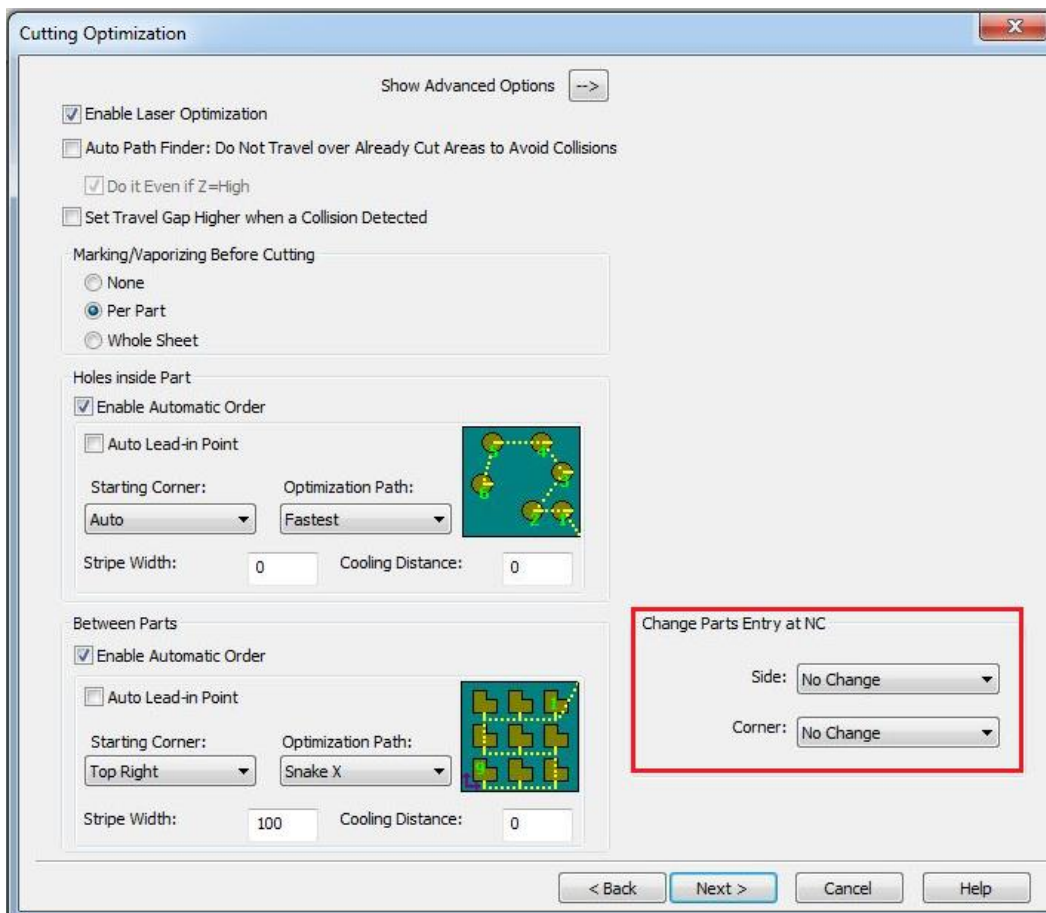
10.4 Allow Reposition and Transformation for Trumpf

cncKad allows reposition and transformation for newer Trumpf machines.

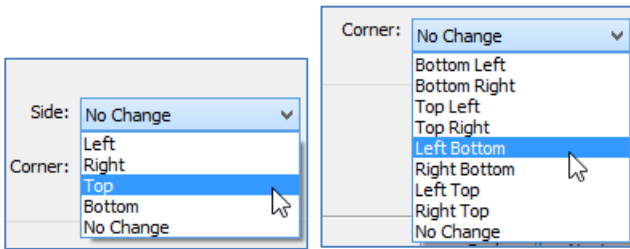
10.5 Change Entry Point during NC Creation

In *AutoNest*, you can now change the entry of all parts, both for regular nests and tube nests.

During NC generation, in the **Cutting Optimization** dialog box, a new section contains the options. This is how the dialog box looks for regular nests:



For regular nests, select options from the **Side** and **Corner** dropdown lists:



For tube nests there are only options for **Side**.

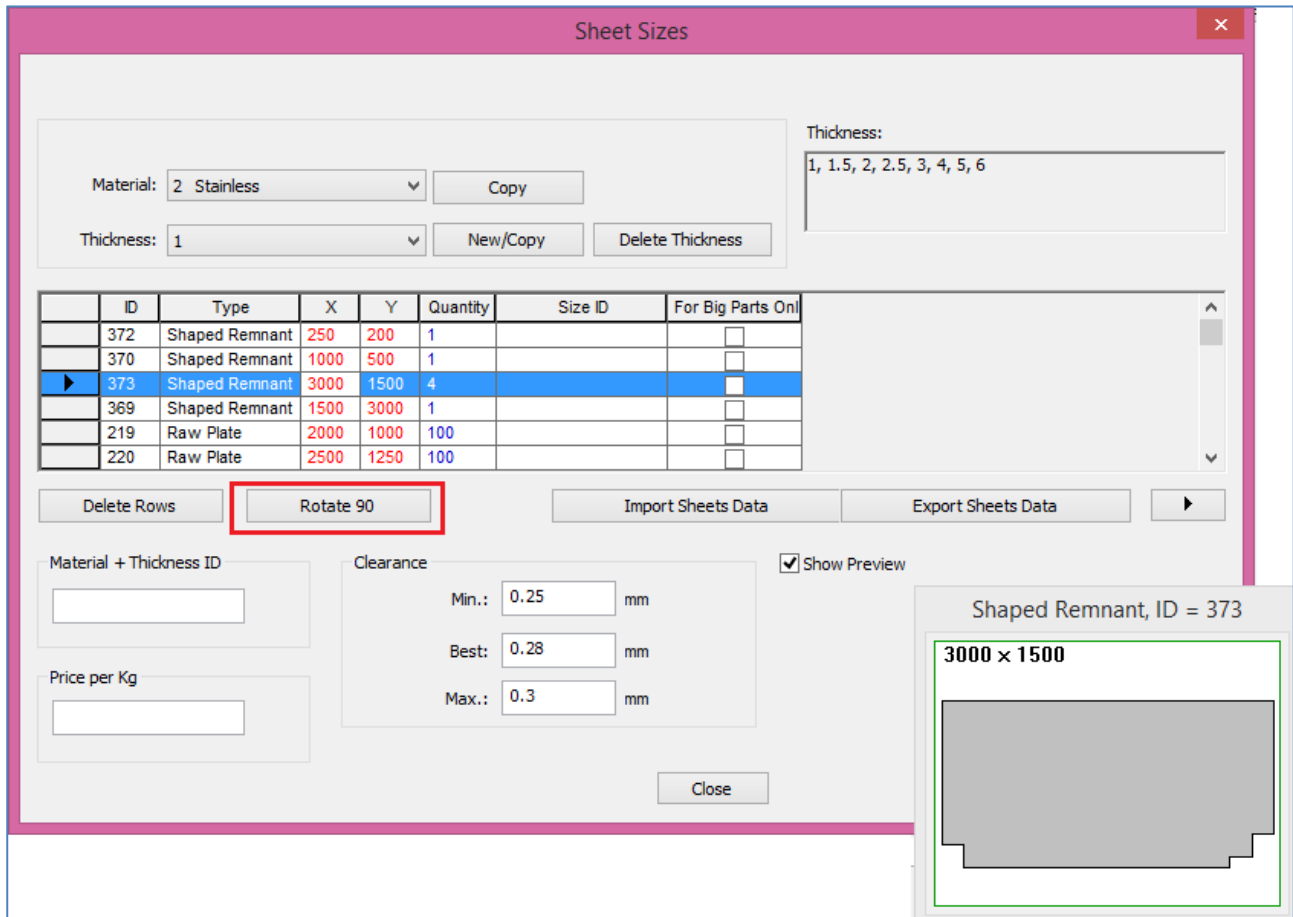
The options are also available in the **Settings** menu => **Machine Settings** => **Cutting Optimization** tab, where you can set general defaults for the current machine.

11 New General Features

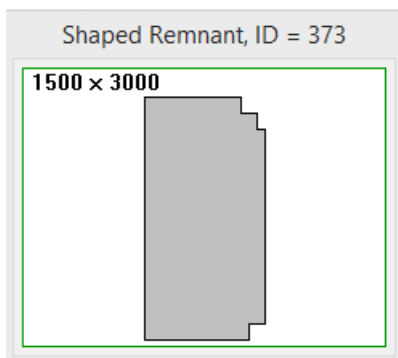
11.1 Rotate Remnant 90 Degrees

You can rotate a remnant in the sheet size database.

In the **Settings** menu => **Workspace Settings** => **Material** tab, click the **Sheet Database** button. The **Sheet Sizes** dialog box opens. Select any shaped remnant and click **Rotate 90**:



This is how the remnant looks after rotating it once by 90 degrees:

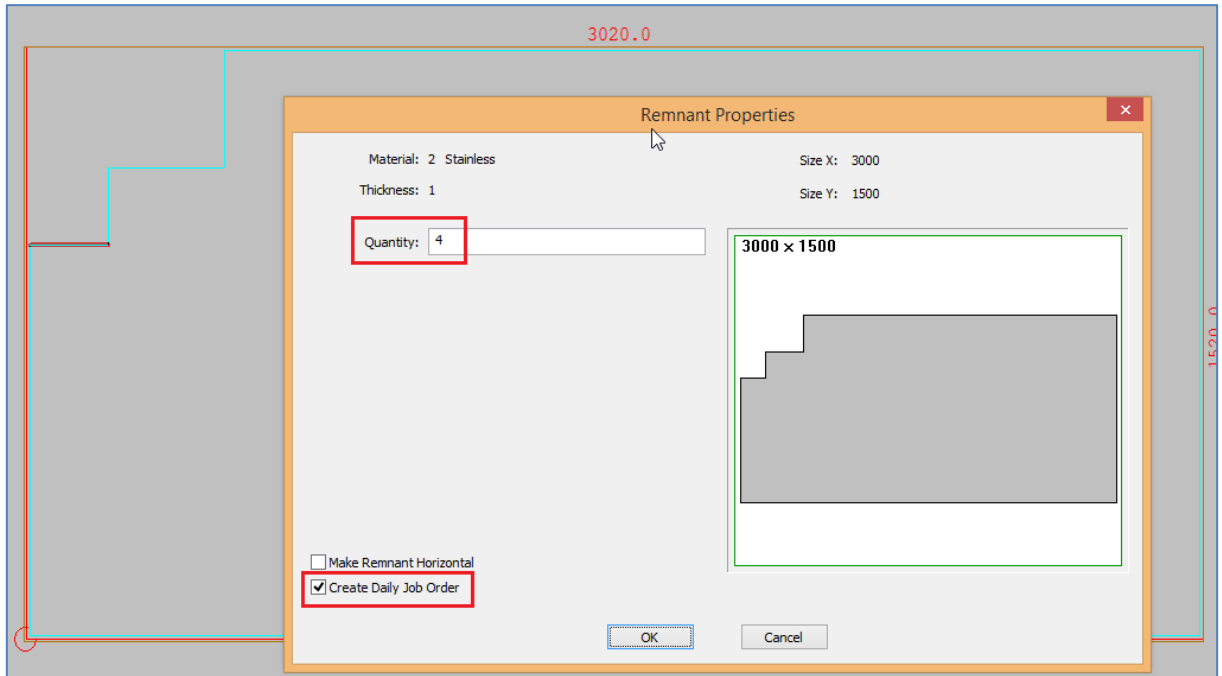


11.2 Create a Remnant and Open It in AutoNest

This feature allows you to add existing remnants to the sheet database. You do this by creating a remnant in **cncKad** and then opening it in **AutoNest**.

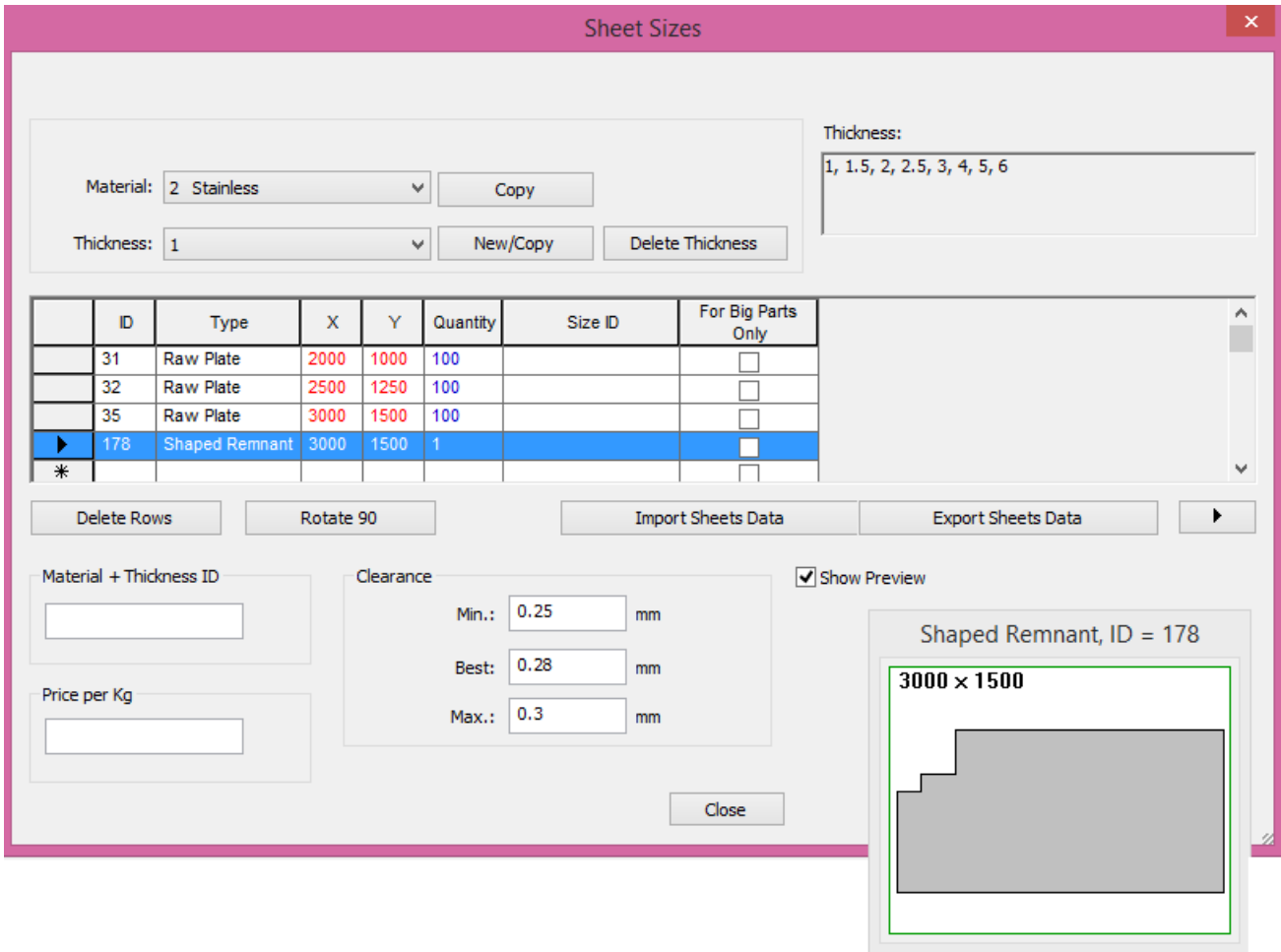
These are the steps:

1. Create a part that has the dimensions of a remnant you already have. For example:

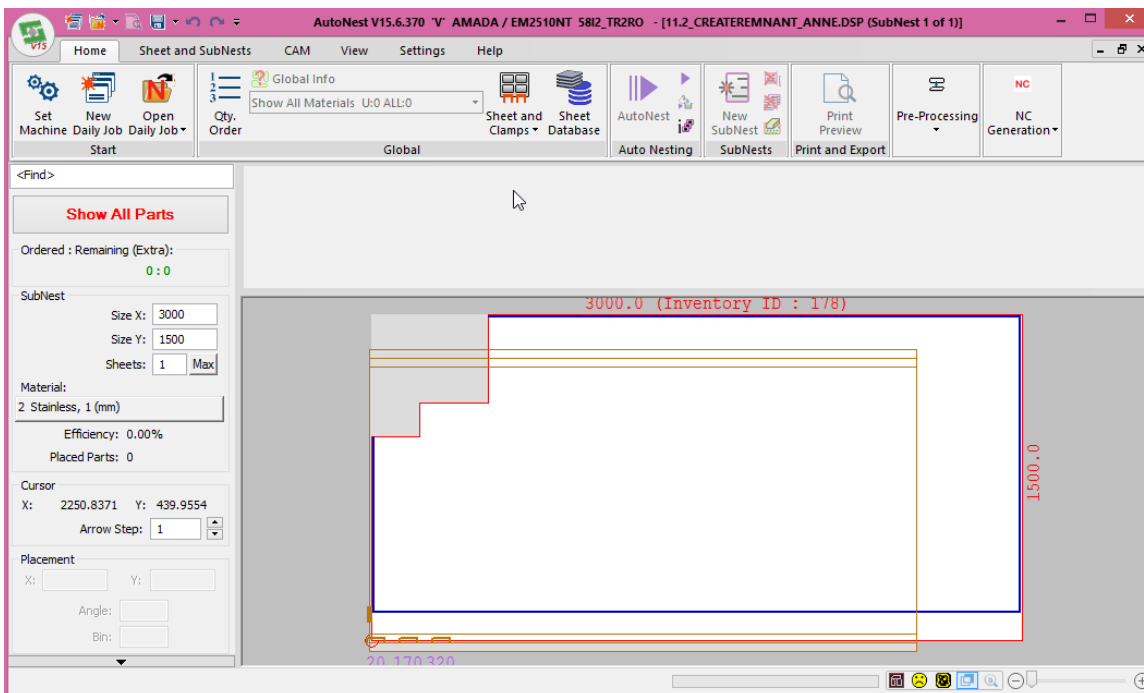


2. From the **CAM** menu, select **Add Remnant to Material Inventory**, click the contour, and press the Enter key. The **Remnant Properties** dialog box opens.
3. Check **Create Daily Job Order**, type a value greater than zero into the **Quantity** field, and click **OK**.

You can then see the remnant in the **Sheet Sizes** dialog box:



cnckad opens **AutoNest** automatically, with the remnant as the current sheet:



11.3 Change TITLES.INI File According to Active Language

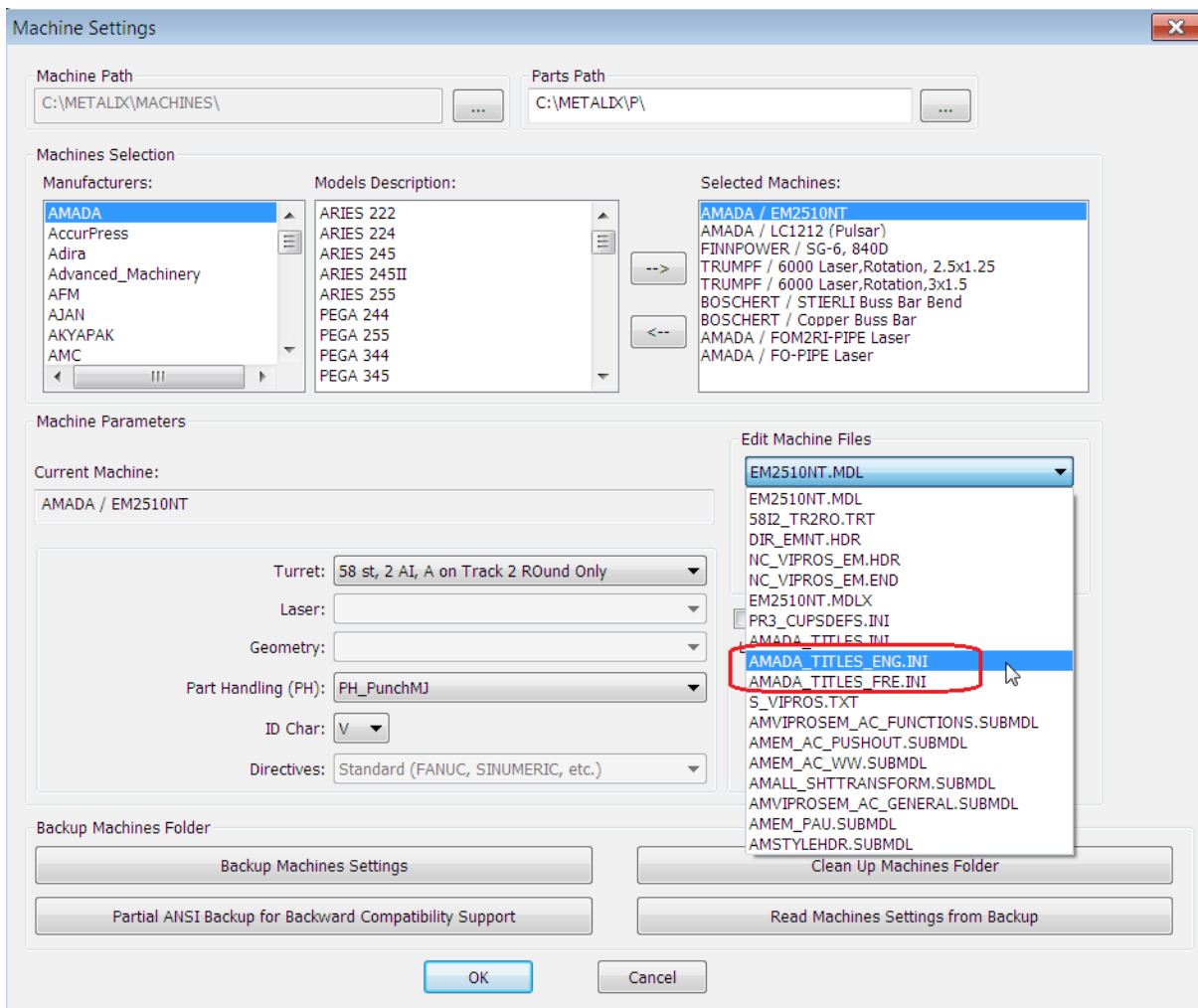
You can use different TITLES.INI files for different languages. **cncKad** selects the relevant file automatically according to language selection in **cncKad** and the file name.

For example, suppose the customer is using an Amada machine and wants to use both French and English titles for table headers (e.g., in the Cutting table) using the AMADA_TITLES.INI file. One TITLE.INI file must be created in the **Machines** folder for each language:

- AMADA_TITLES_FRE.INI
- AMADA_TITLES_ENG.INI

When the customer switches languages (in the **Settings** menu => **Languages**), **cncKad** automatically selects the appropriate file (if it exists), with no need to re-select the machine.

You can see the two different TITLES.INI files in the **Settings** menu => **Machines Settings** => **Machines** tab => **Machine Settings** button => **Edit Machine Files** dropdown list:




11.4 Save Sub-Part with All CAM Layers

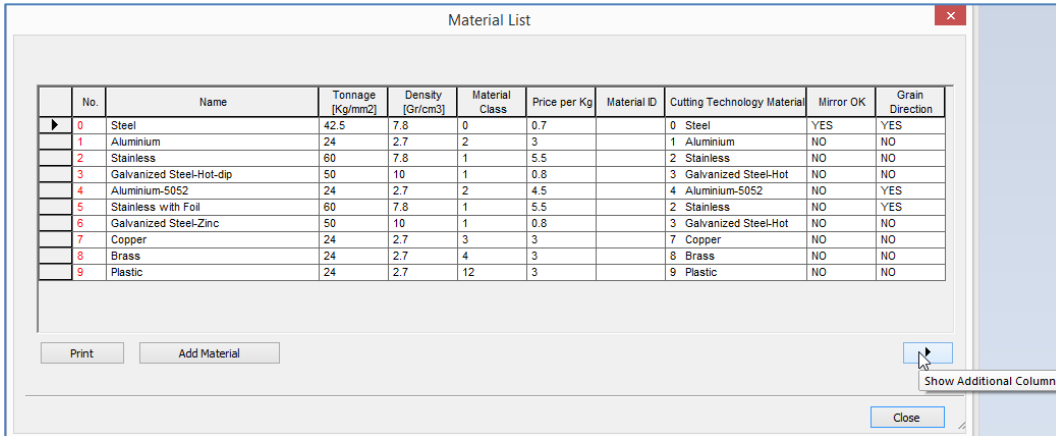
In **cncKad**, you can now save a sub-part file including all its CAM layers:


1. Open a part that has more than one layer.
2. In the **File** menu, select **Save Sub-Part**.
3. Click all the entities to save, press the Enter key, and type a file name.

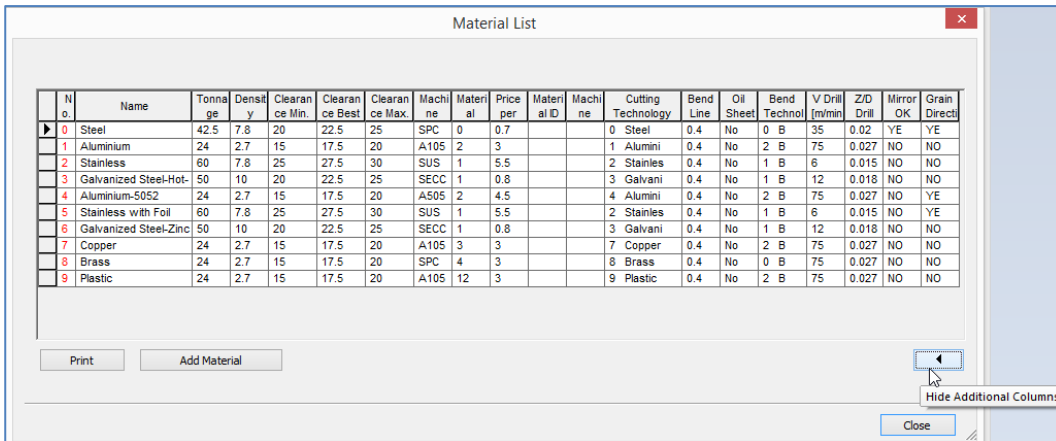
cncKad saves the sub-part as a DFT file with all CAM layers assigned to it.

11.5 Show/Hide Columns in Material List

When you open the **Material List** dialog box (via the **Settings** menu => **Workspace Settings** => **Material** tab => **Edit Material List** button), the dialog box initially shows a reduced set of columns (generally considered the most common used). To show the hidden columns, click the right arrow  at the bottom right of the dialog box:



This is an example of more columns. To see fewer columns, click the left arrow :



11.6 Mirror and Grain Direction in Material List

The **Material List** dialog box has new columns:

- **Mirror OK** – Specifies if parts made from this material can be mirrored; i.e., both sides of the material are identical. Options: **Yes/No**.
- **Grain Direction** – **Yes** indicates that parts made from this material are restricted to rotations of 180 degrees. This means that if the available directions are four-way, only two ways are allowed. **No** means that parts can be rotated in any direction.

You can see/edit these columns' values by clicking the **Settings** menu => **Workspace Settings** => **Machines** tab => **Edit Material List** button:

Material List ✖

	No.	Name	Tonnage [Kg/mm2]	Density [Gr/cm3]	Material Class	Price per Kg	Material ID	Cutting Technology Material	Mirror OK	Grain Direction
▶	0	Steel	42.5	7.8	0	0.7		0 Steel	YES	YES
	1	Aluminium	24	2.7	2	3		1 Aluminium	NO	NO
	2	Stainless	60	7.8	1	5.5		2 Stainless	NO	NO
	3	Galvanized Steel-Hot-dip	50	10	1	0.8		3 Galvanized Steel-Hot	NO	NO
	4	Aluminium-5052	24	2.7	2	4.5		4 Aluminium-5052	NO	YES
	5	Stainless with Foil	60	7.8	1	5.5		2 Stainless	NO	YES
	6	Galvanized Steel-Zinc	50	10	1	0.8		3 Galvanized Steel-Hot	NO	NO
	7	Copper	24	2.7	3	3		7 Copper	NO	NO
	8	Brass	24	2.7	4	3		8 Brass	NO	NO
	9	Plastic	24	2.7	12	3		9 Plastic	NO	NO

Print Add Material ▶

Close