NC Express e^3

Software version release: 21.2

20. January 2022

Prima Power
Machinery Division of Prima Industrie Group

New features in NC Express e³ 21.2

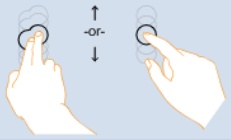
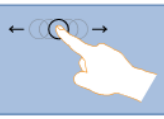
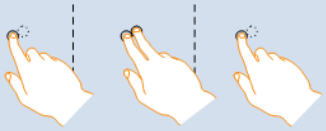
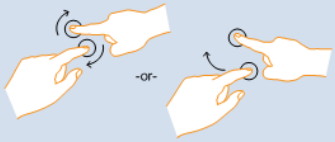
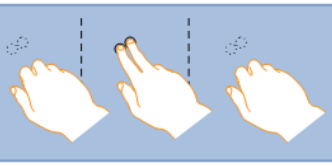
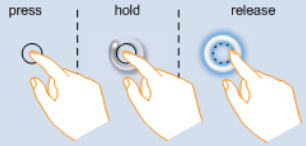
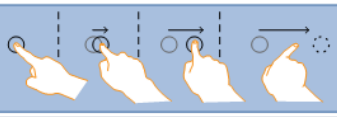
Prima Power
Machinery Division of Prima Industrie Group

Unfolding

Support touch screen gestures

PREMIUM

Touch screen gestures are now supported on ***Unfolder*** also, similar to 2D according the table below:

GESTURE	WINDOWS USAGE	GESTURE ACTION	ACTION (○= finger down | ◌= finger up)	2D	3D
Tap / Double Tap	Click / Double Click				
Panning with Inertia	Scrolling	Drag 2 fingers up and down		Pan	Pan
Selection / Drag (left to right with one finger)	Mouse Drag / Selection	Drag one finger left / right		Window selection	Pitch & Yaw view
Press and Tap	Right-click	Press on target and tap using a second finger		Right-click	Focus view
Zoom	Zoom (defaults to CTRL key + Scroll wheel)	Move two fingers apart / toward each other		Zoom	Zoom
Rotate	No system default unless handled by Application (using WM_GESTURE API)	Move two fingers in opposing directions -or- Use one finger to pivot around another		Rotate selected entity	Roll view
Two-Finger Tap	N/A – Exposed through Gesture API, used by Application discretion.	Tap two fingers at the same time (where the target is the midpoint between the fingers)		Zoom Fit All	Zoom Fit All
Press and Hold	Right-click	Press, wait for blue ring animation to complete, then release		Right-click	-
Flicks	Default: Pan up/ Pan Down/ Back, and Forward	Make quick drag gestures in the desired direction		Pan forward	Pan, Pitch, Yaw forward

Supported 3D formats and versions

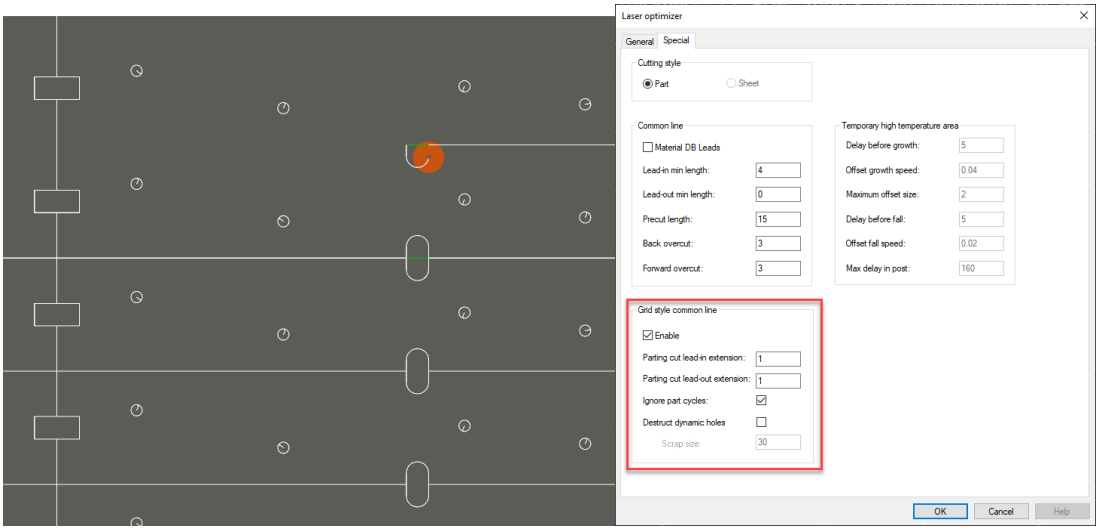
PREMIUM

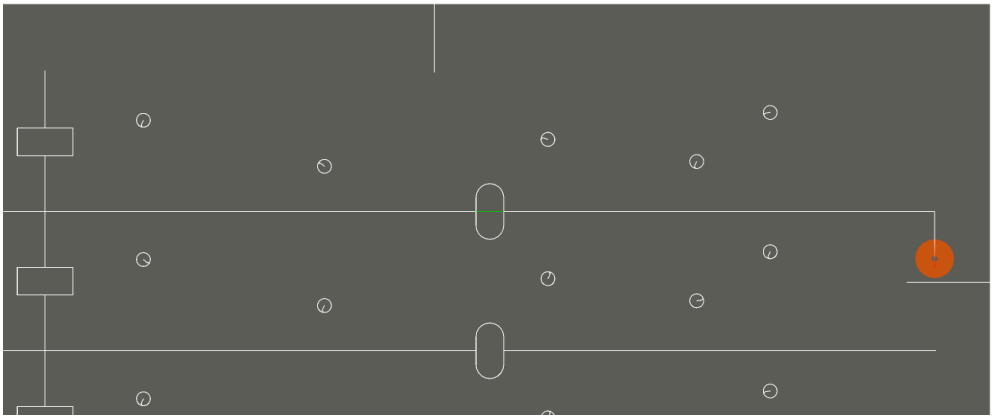
- Autodesk Inventor (*.ipt, *.iam), up to 2022
- SolidWorks (*.sldprt, *.sldasm), up to 2021
- Solid Edge (*.par, *.psm, *.asm), up to 2021
- Siemens JT (*.jt), up to 10.6
- Siemens NX (*.prt), up to 1973
- PTC Creo (*.prt.x, *.asm.x), up to 8.0
- Catia (*.catproduct, *.catpart), V4 (4.15 to 4.26) and V5 (R10 to R31), V6
- IGES (*.igs, *.iges), up to 5.3
- STEP (*.stp, *.step), AP203 (E1, E2), AP214 (up to E3), AP242 (E1, E2, BO XML), AP209
- Spatial Acis (*.sat), up to 2021 1.0
- Parasolid (*.x_t, *.x_b), up to 34.0

The LASER machines

Grid style common line cut

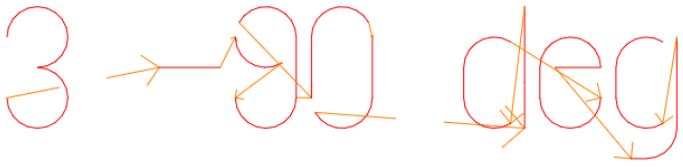
A new choice ***Grid style common line is now available*** under ***Special***-page when ***Common line*** is ON on the ***General*** page. This provides an easy way to get a faster common line cutting sequence. Parts can be prepared normally, as single parts, and just nested on a ***Commonline*** distance to each other.
A straight line cutting sequence will be made when continual segments can be found. First, all straight common line cuts will be made and then finally the outside will be cut.
The logic automatically goes to part-by-part style commonline cutting if straight cutting segments cannot be determined.
The ***Destruct dynamic holes*** option adds laser destruct cuts on notches between parts. Take care to use a proper target ***Scrap size*** with this.

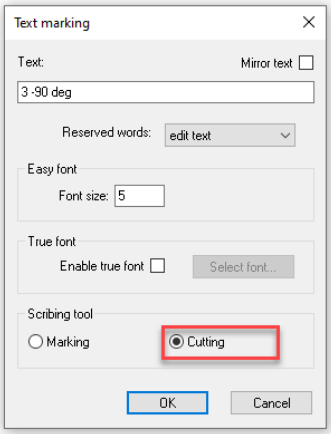




Easy font for cutting through

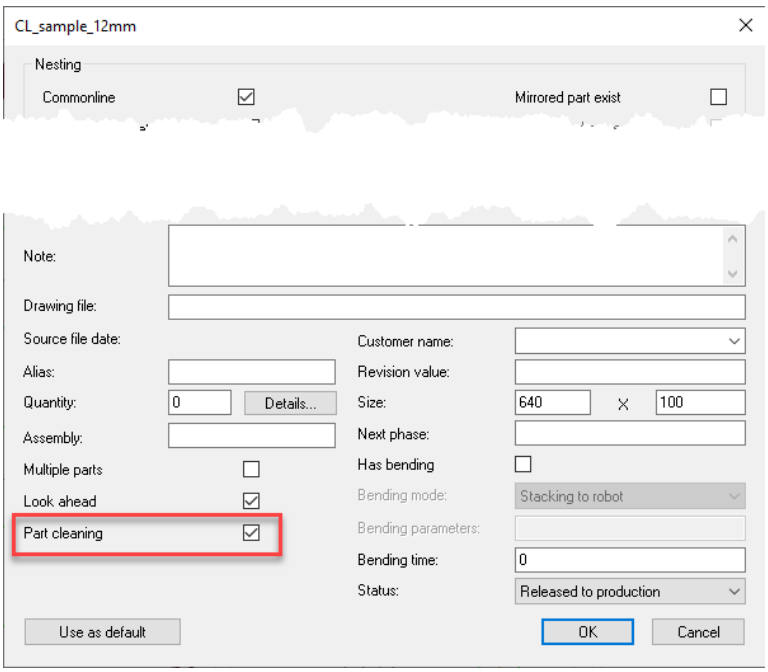
The ***Text marking*** dialog has a new ***Cutting*** option. This uses a simple font, which is intended for cutting the text through the metal (instead of etching).

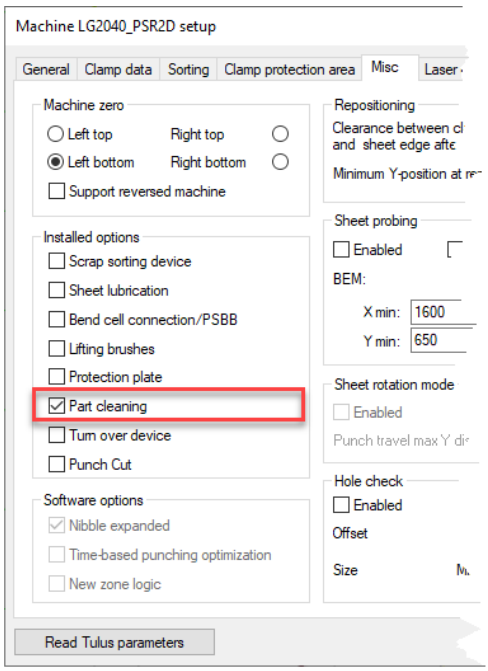




Part cleaning option for Platino-LST

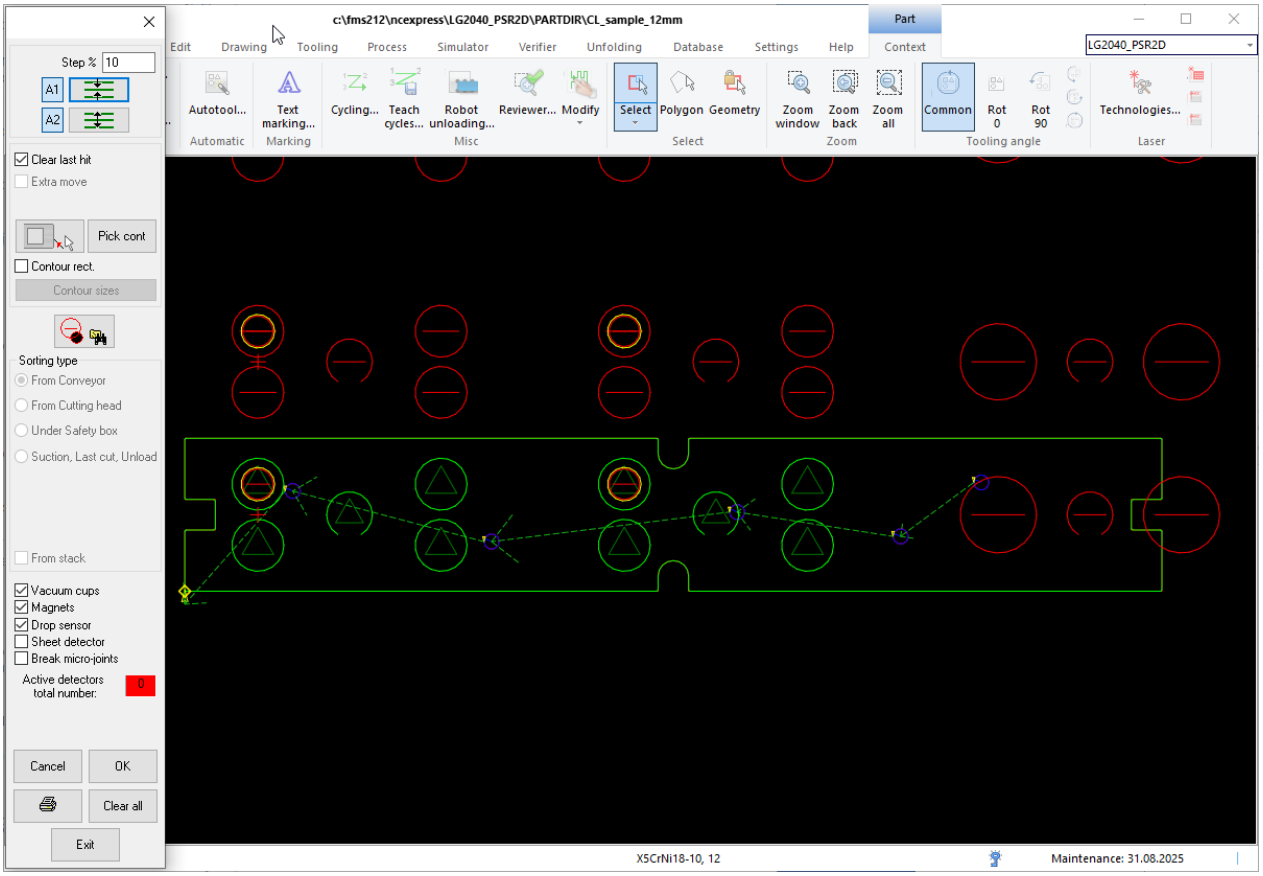
A new ***Part cleaning*** option is available for machines that support this feature. The option first needs to be activated in ***Machine settings - Misc*** and then this option can be set for each part in ***File - Properties***.

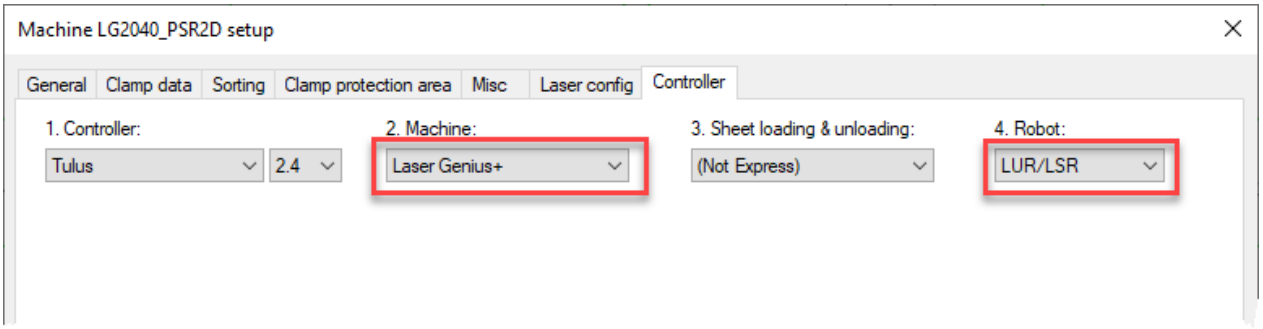




Support LG+PSR machine

The new Laser Genius+ PSR machine is supported by NC Express 21.2. Robot configuration is different to earlier flatbed laser machines, but usage in NC Express is pretty much the same.

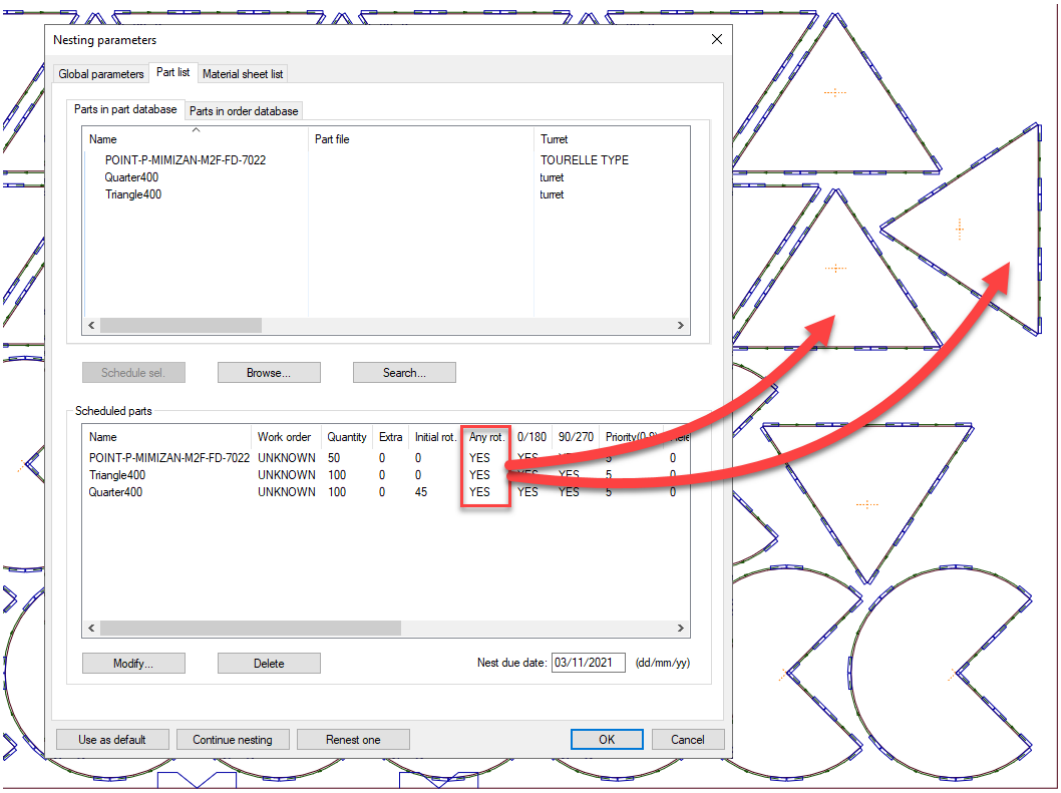


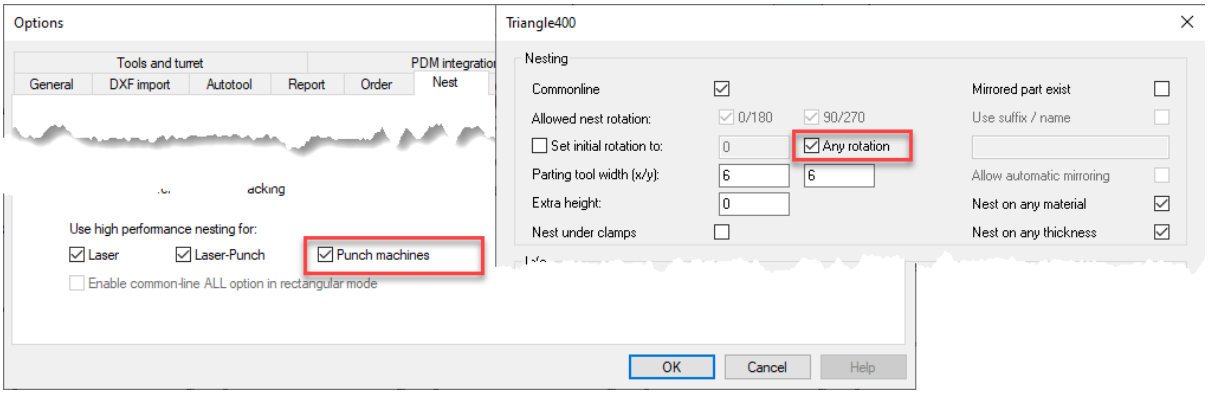


The PUNCH machines

Allow parts to rotate freely on free-form nesting

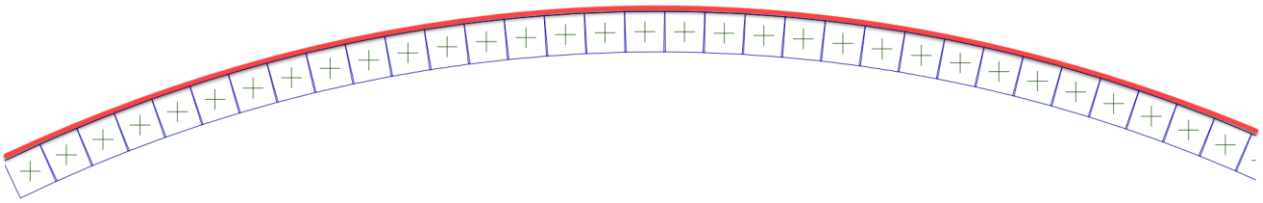
Parts can be freely rotated in a punch-only machine, similar to laser machines.
A precondition is that ***Use high performance nesting*** is ON for ***Punch machines*** and in ***File - Properties*** part has ***Any rotation*** ON.



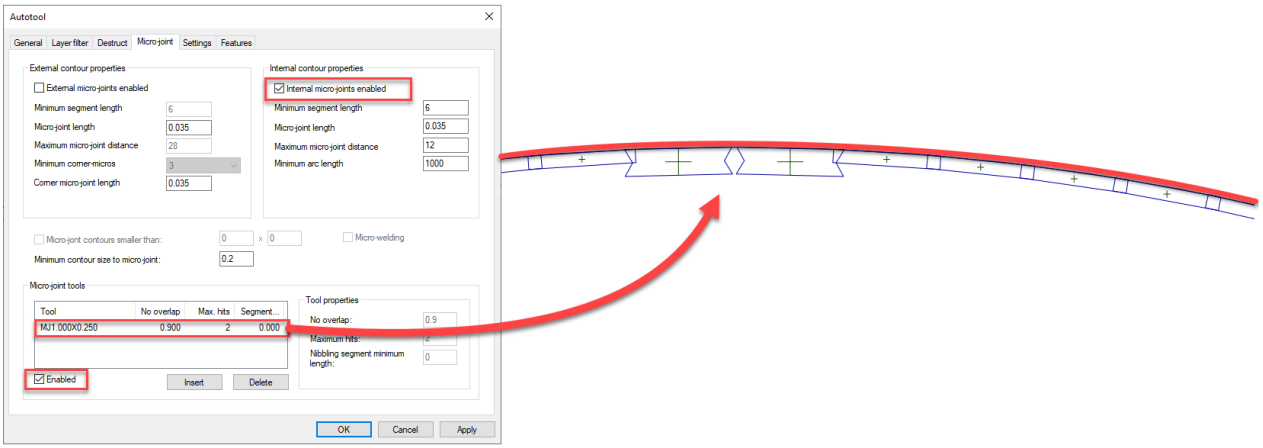


Nibble arcs with SQR/OBROUND/RECT-tool in Autotool

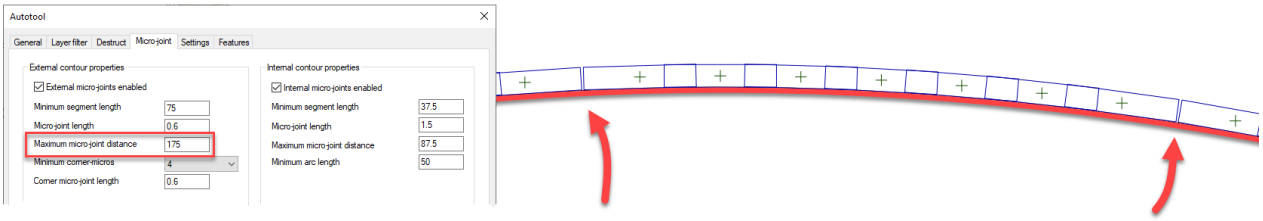
Autotool now considers using Square, Obround or Rectangular tools to nibble an inside arc. Previously, the only Round tool was used on such geometry segments.



Inside arcs on holes can have micro-joints when the micro-joint tool is enabled:

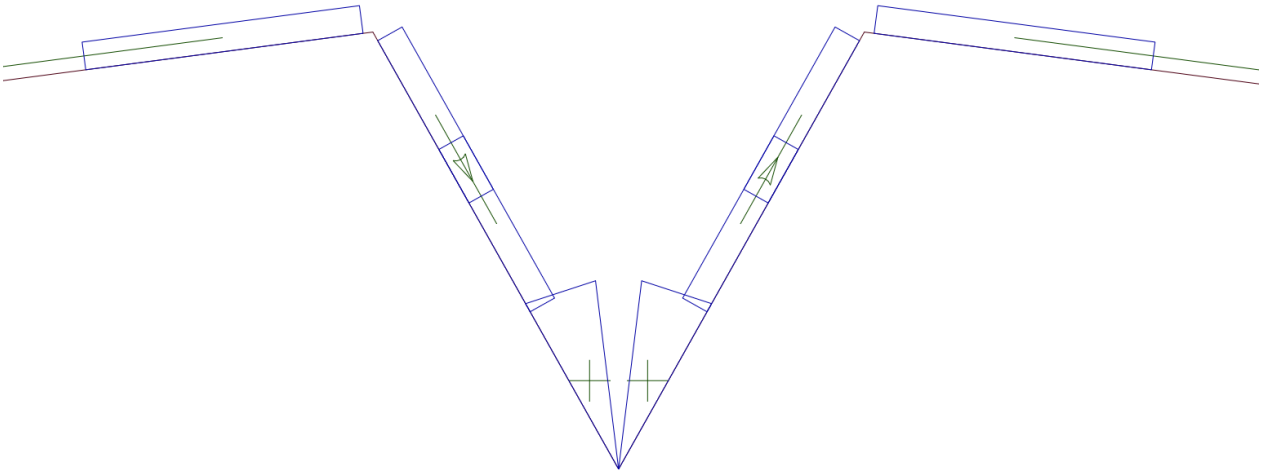


Outside arcs can have micro-joints when required by the ***Maximum micro-joint distance***:



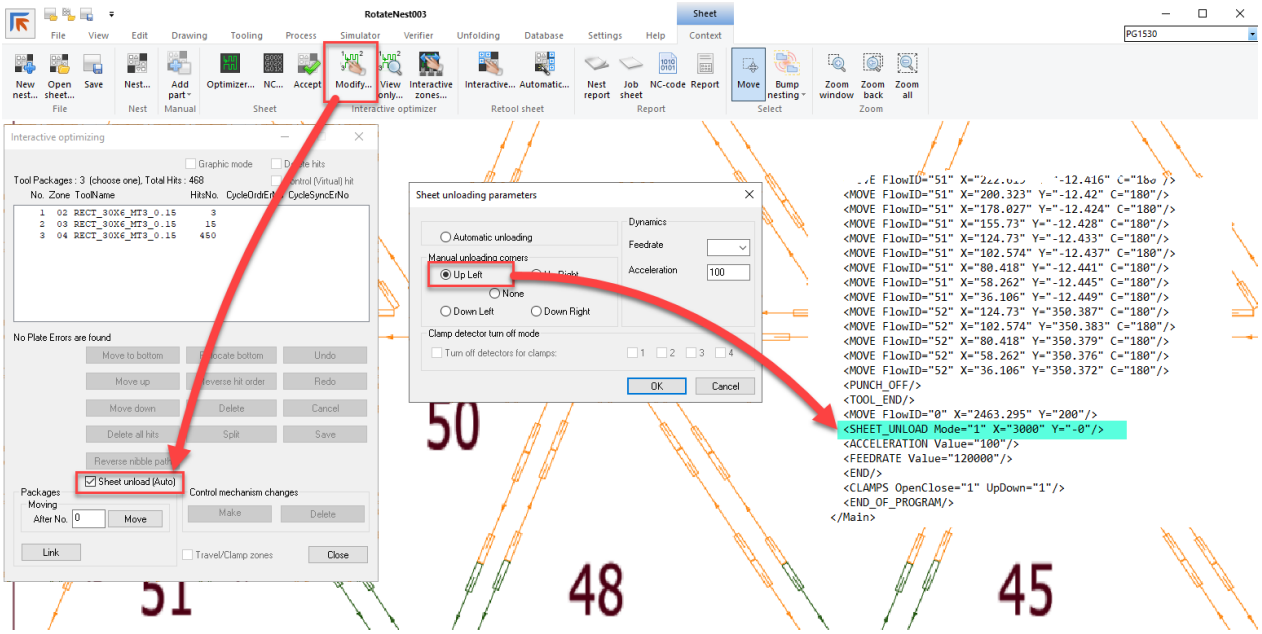
Contour tooling for triangular notches using the triangular tool

Triangle tool hits on acute corners are now automatically applied by Autotool in contour tooling mode for punching machines.



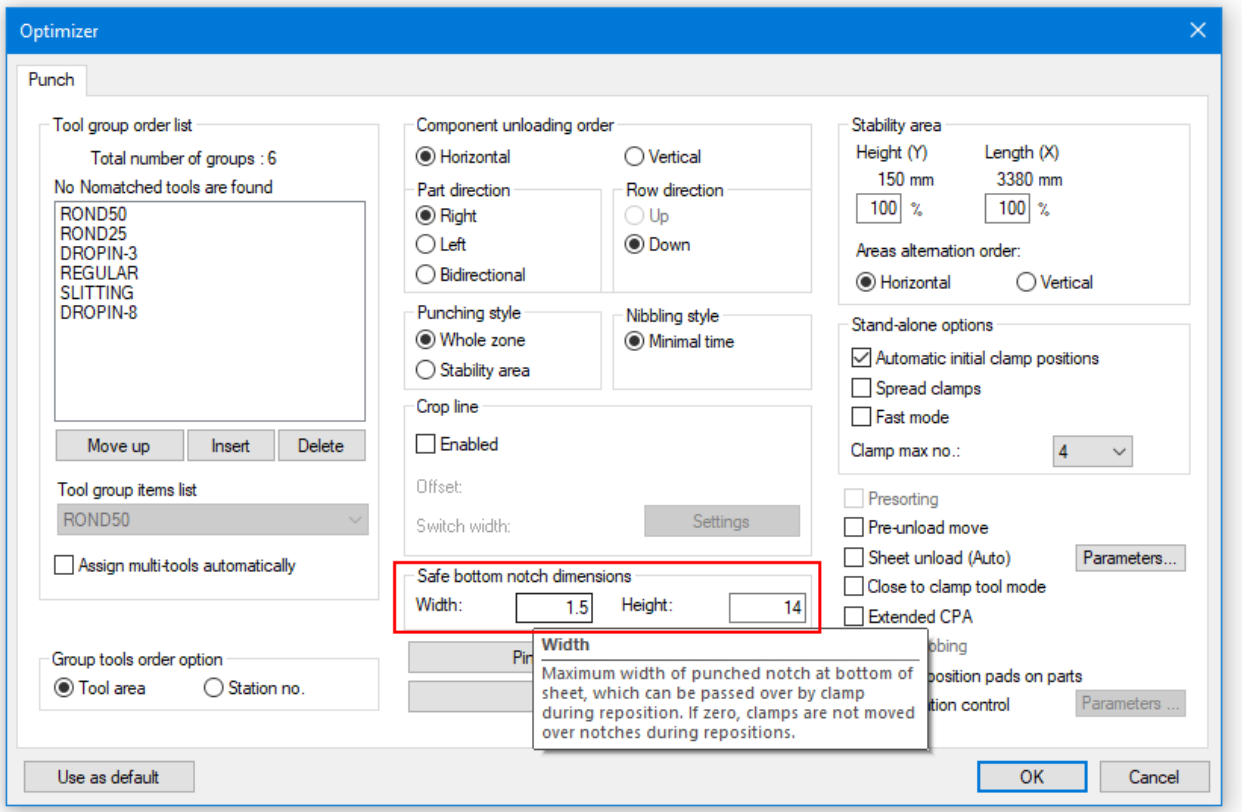
Allow change 'Sheet unload' style in the Interactive optimizer

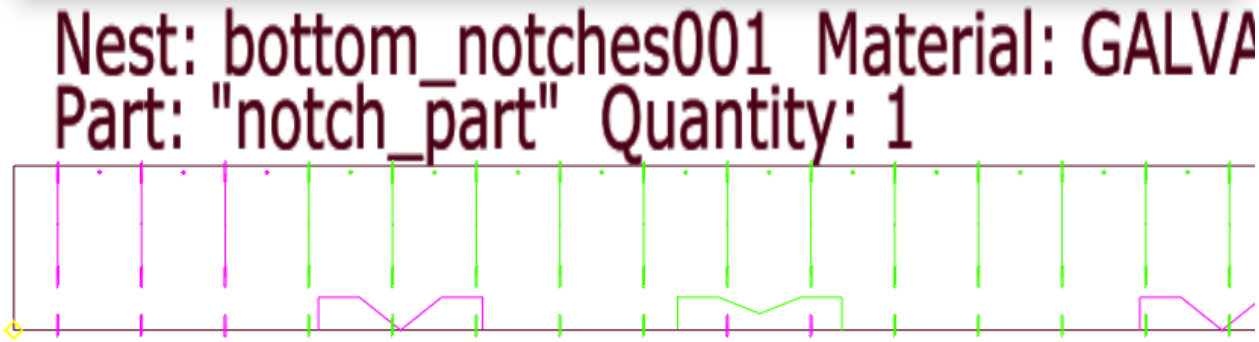
It is now also possible to change the sheet unloading style between ***automatic***, one of the ***corners*** and ***none***, after optimization, using ***Interactive optimizer - Modify*** and selecting the ***Sheet unload*** option.
A notification message is given if reaching the new unloading position requires changing the reposition zones.



Safe bottom notch dimensions for repositions

NC Express avoids moving clamps over notches on the bottom of a sheet. This is to avoid the sheet being detached from clamps during repositions. However, sometimes parts have notches at the bottom and the part has to be nested on clamps. This may lead to a situation where clamps have to be moved over notches during repositions. When ***New zone logic*** is activated (in ***Machine settings - Misc***), the size of notches can be defined, so that the notch size is considered to be safe for moving clamps over them. The dimensions of a ***safe bottom notch*** can be given in the ***Optimizer*** settings on the tab ***Punch***.





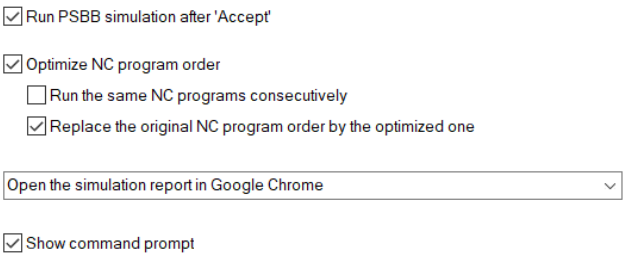
The COMBI, Punch-Shear machines

Fast numerical PSBB simulation

The new NC Express 21.2 version, or more precisely the ***NC Express e³ Line Premium*** - edition, introduces new enhanced tools to simulate the basic functions of the PSBB line and how parts flow in production. Simulation data can then be used to optimize the sheet / NC program order to balance the workloads of the line's main machine and bending unit. A dedicated report is created and presented to the NC Express programmer to give a clearer understanding of how the PSBB line is handling the parts. The report highlights possible sheets / NC programs the programmer may want to re-adjust in NC Express to achieve a better workload balance.

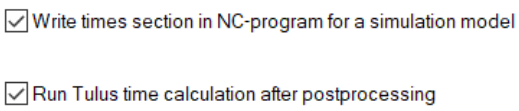
Use of the PSBB simulation requires a few activation settings.

1. Navigate to ***Settings*** - ***Options*** - ***PSBB simulation*** view, and select from the following settings. For further details of the settings, move the mouse cursor over the top of the setting and read more from the tooltip message.

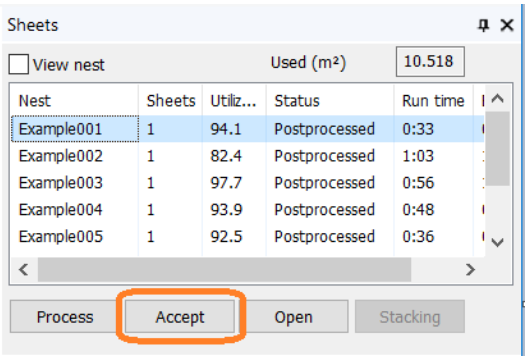
   As can be seen from the above picture of the options, the PSBB simulation can be run after the user presses the ***Accept***-button.

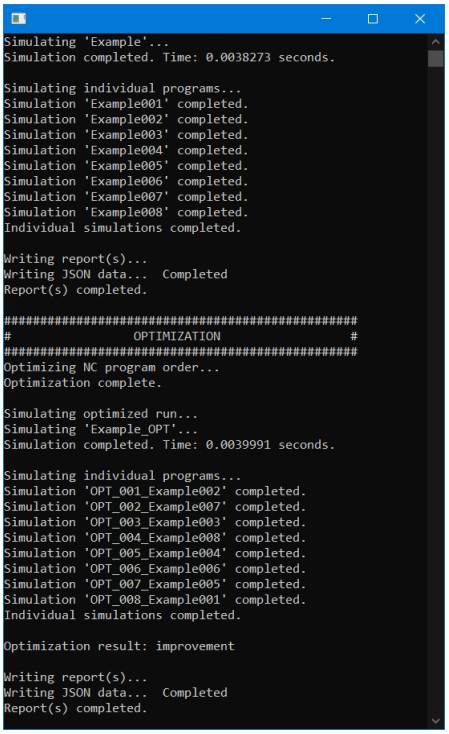
2. Select the following from the ***Tulus integration*** page:

3. To run default PSBB line configuration, copy the 'PSBB_simulation_config.json' file from the 'ncexpress/bin' directory to the 'WORK' folder.

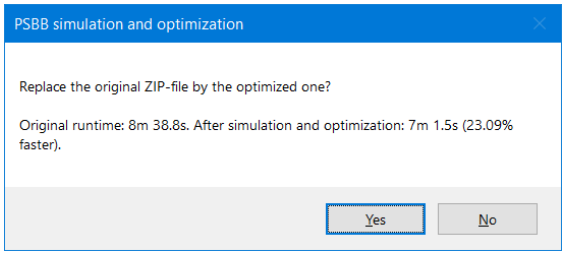
Once all sheets have been post processed and the ***Sheets***-list ***Accept***-button has been pressed, a command line prompt showing the progress of the simulation and possible optimization becomes visible.





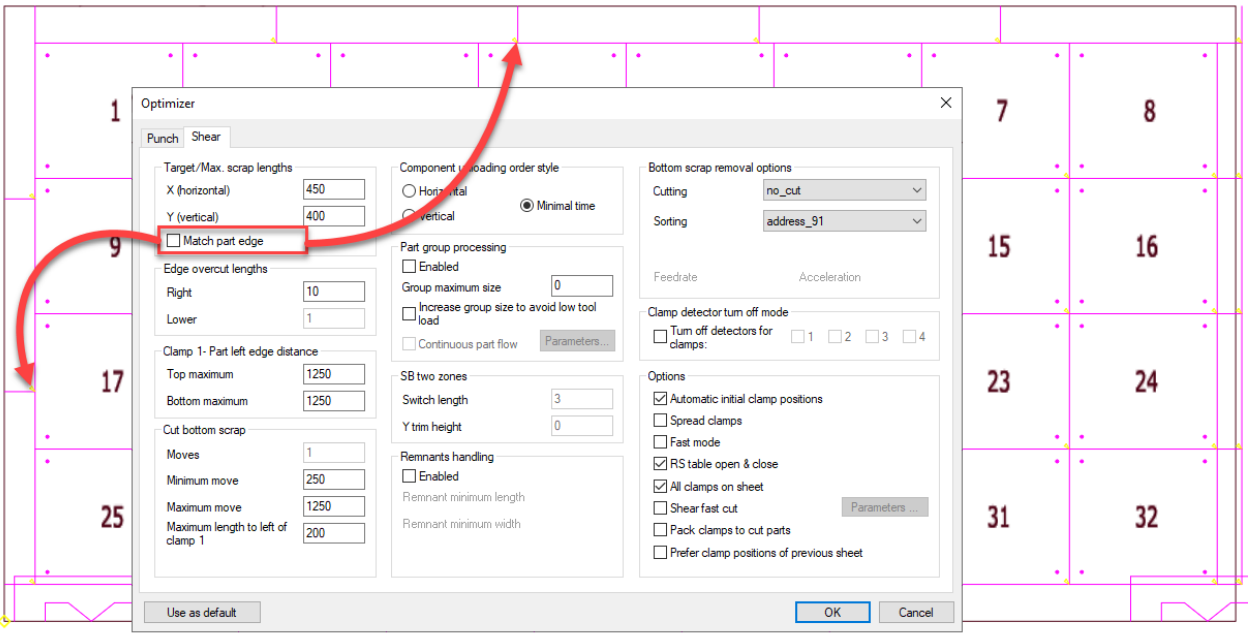
Once the simulator has completed its tasks, the simulation report files are opened automatically, if this setting is enabled:

If the results obtained are satisfactory for the NC Express programmer, then the NC program XML files' original order can be updated to the simulator's suggested order. This process will replace the original production order ZIP file with the simulator's suggestion.



Allow shear scrap hit to extend beyond a part's edge

The ***Match part edge*** option on the ***Shear*** optimizer page allows shear scrap hits to extend further from a part's edge. This can sometimes save one or two shear scrap hits, but with the possible drawback of a small step from the shear corner piece.



Support two robot configurations on the same machine

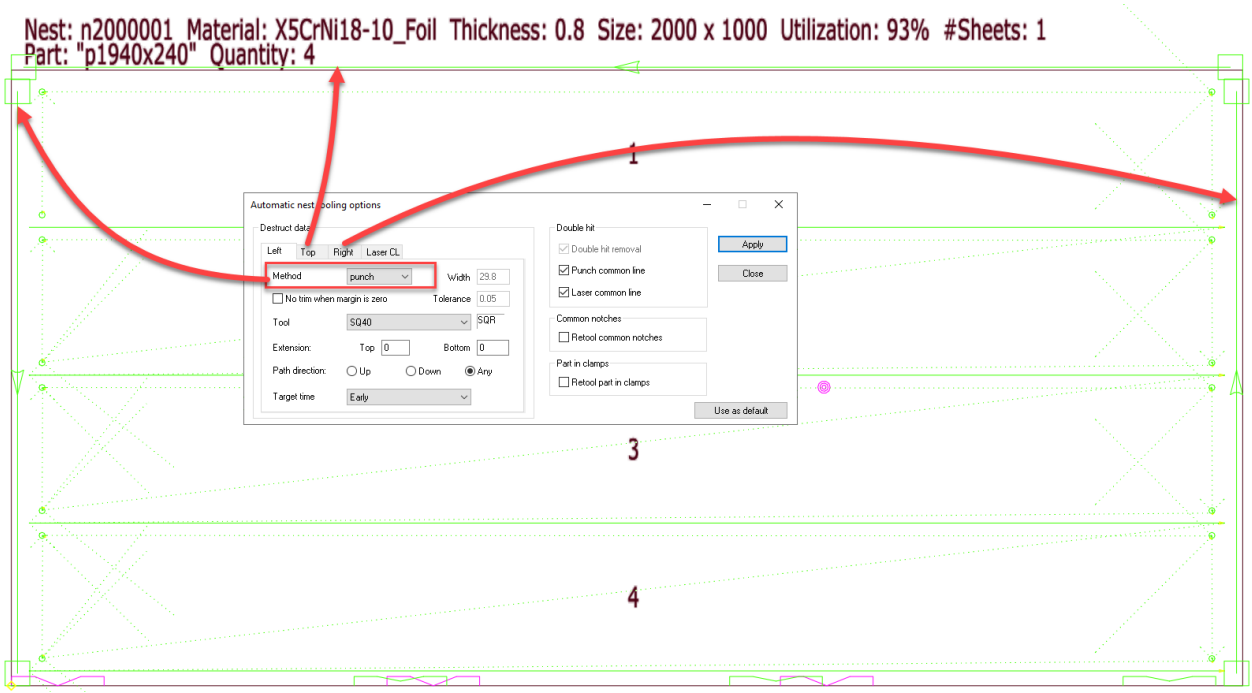
A machine setup can support two unloading robots. This is the ***Multi robot*** option on the ***Machine settings*** - ***Controller*** page. More information can be found from Prima Power R&D.

The COMBI, Punch-Laser machines

Punch destructing of sheet edges on the Laser-Punch commonline

Punch destructing of sheet edges can now be combined with Laser-Punch commonline and skeleton cutting. This can be activated in ***Retool sheet*** - ***Automatic*** - ***Left/Top/Right*** - ***Method*** by selecting the ***punch*** *option*.

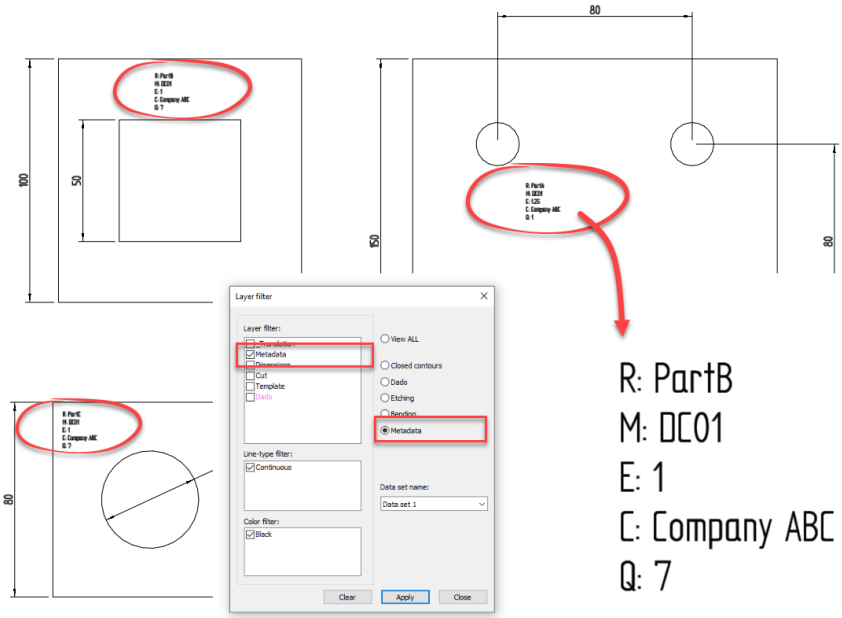
Punching sheet edges, instead of laser cutting, can be convenient for certain materials and nests.

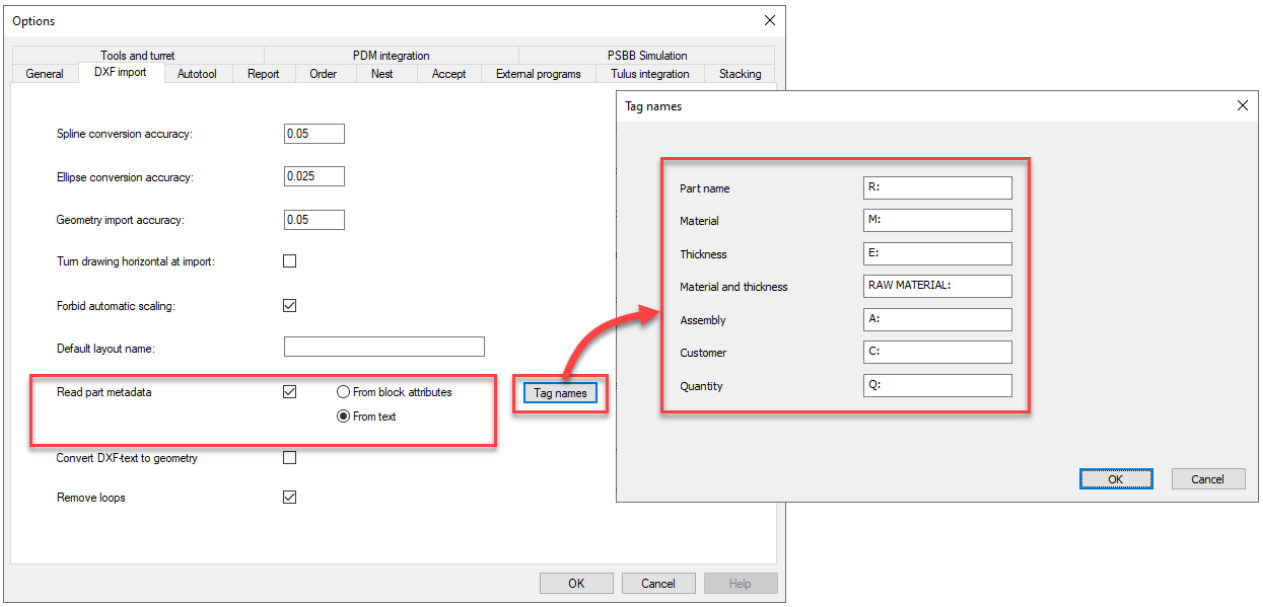


Other usability enhancements

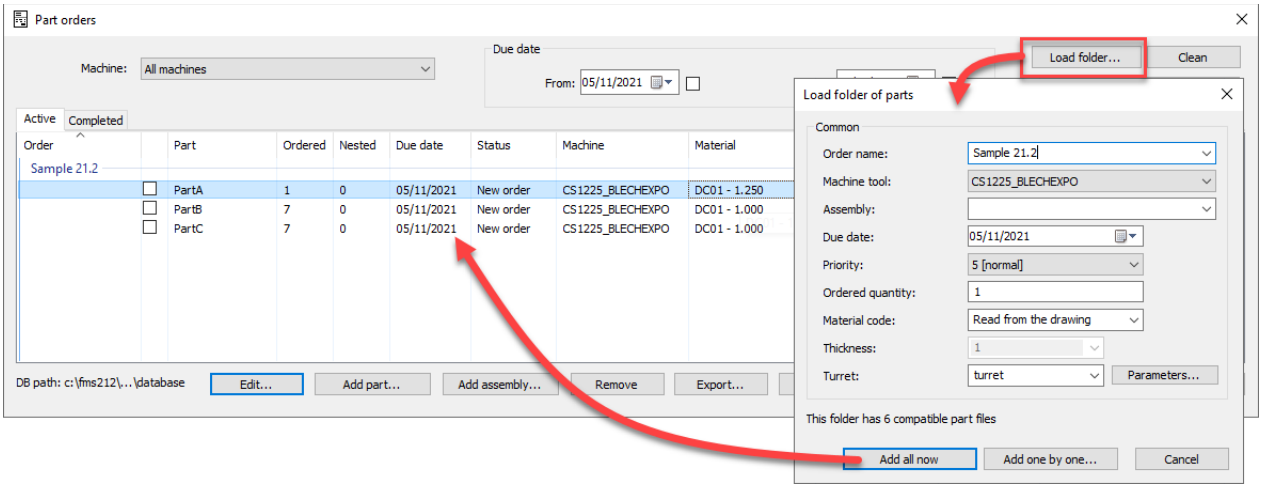
Support reading of multi-part metadata encoded into the text

Metadata can also be read from DXF/DWG drawings. This first requires ***Read part metadata*** to be activated in ***Settings*** - ***Options*** - ***DXF import***. Typically the ***From text*** option needs to be activated and the text prefix entries set according to requirement. Then the ***Settings - Layers*** must have the correct layer setup for ***Metadata***.



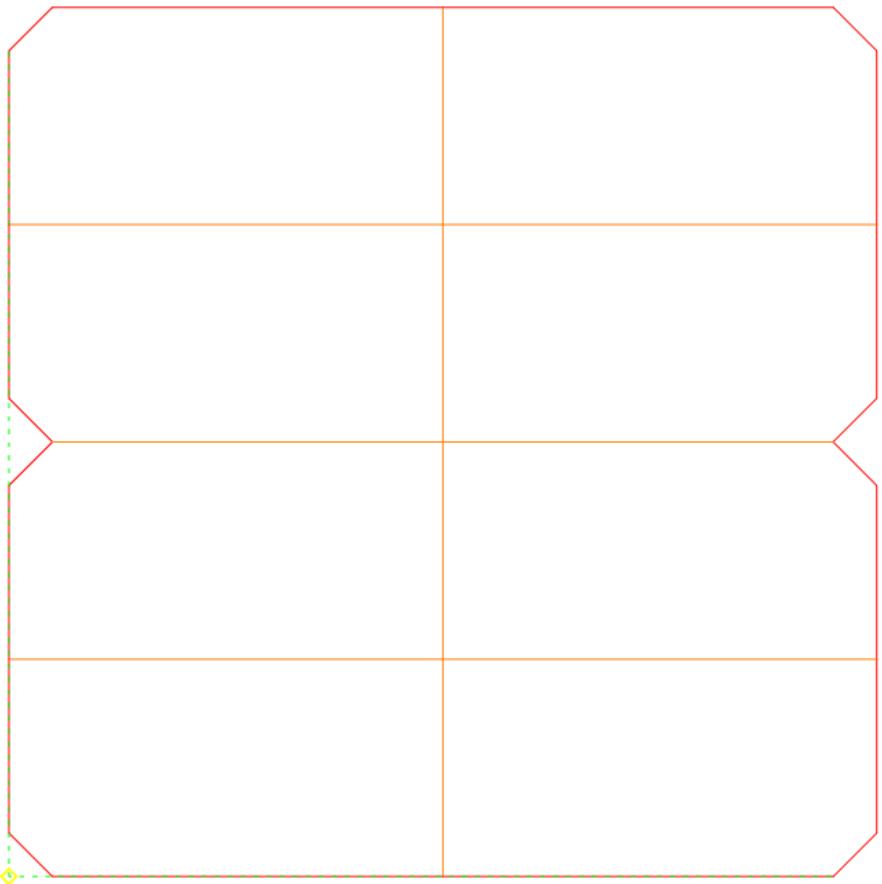


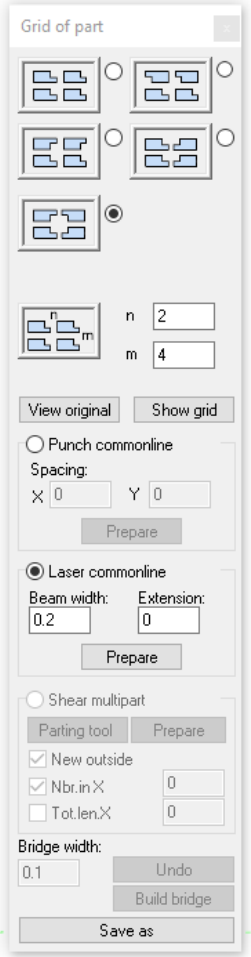
When the setup has been completed, then DXF/DWG-files can be imported through the ***Database - Orders - Load folder***. Both different materials and quantities can be handled:



Mirror in X and Y in Grid of parts-dialog

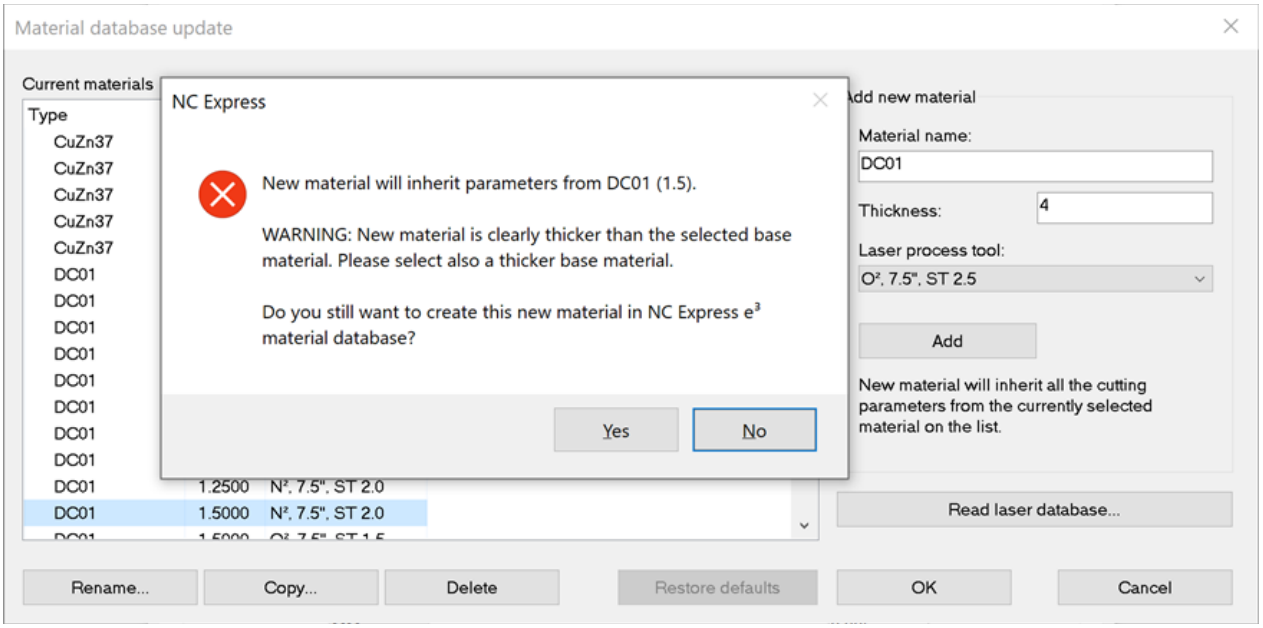
It is now possible to mirror parts around both the X- and Y-axis in ***Drawing - Grid parts***. This offers a better fit for certain non-symmetric parts to form a grid.





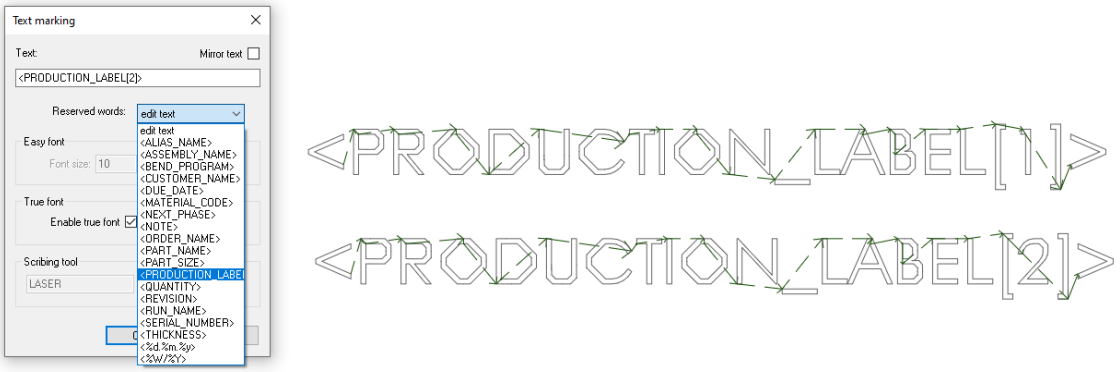
Indicate base material clearly when creating new materials

There are new safeguards against making a material with improper base material when adding a new material on a laser machine (or Laser-Punch).

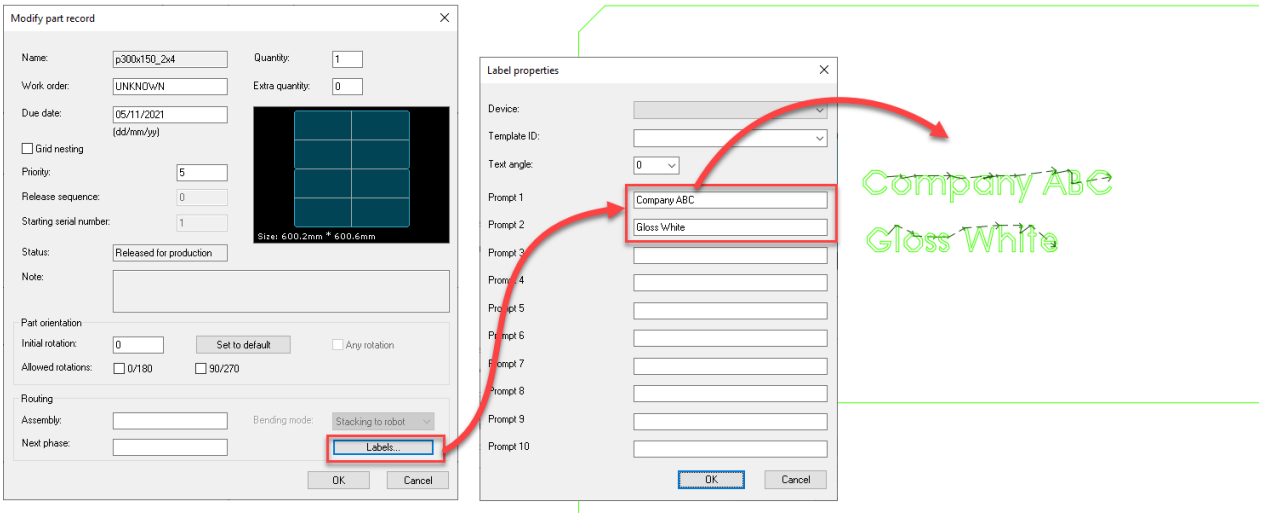


Production label to Text marking

Production label data is now also possible for ***Text marking*** (laser etching, diamond marking, pen, letter stamp).
Note: The bracket syntax "`Production_Label[x]`" (instead of `Production_Label`") can be used to choose the label index.



Production label data can now also be inspected and input from the ***Scheduled parts*** of ***Nest***-dialog with the ***Labels***-button:



Normally the production label data comes from an order file (field `ProductionLabel`) through ***Database*** - ***Orders***, similar to how label printers, inkjet and laser markers have been supported previously.

Clone static nests on NestNCX

NC Express supports static nests through the Order database. Using static nests enables the cloning of existing, highly repeatable, production batches as new orders, saving the nesting and optimization phases. (See NC Express User Guide, section 'Static nest'.)

Now static nests can also be cloned through the PARANCX scripting interface. To clone existing static nests, the name of a new production batch and new order information is given by the user. The batch to be cloned has to be saved to the Nesting database as a static nest.

```
'Create nest related objects
Set nest = CreateObject("ParaNCX.NestNCX")
Set schedulepart = CreateObject("ParaNCX.SchedulePart")

'Set machine
nest.machine = "SG1530"
'Initialize nest object, give name of the destination run where we clone into
nest.init "new run name"

'Add part order(s) to nest
schedulepart.Name = "PartA"
schedulepart.Quantity = 2
schedulepart.WorkOrder = "New order"
nest.ScheduleParts.Add schedulepart

'Clone wanted run, give Batch ID of static nest existing in Nesting database
nest.CloneStaticNest "BatchID"
'Show messages, if any
nest.Messages.ShowLog

'Continue as needed. As example, postprocess cloned .opm files
Set plates = nest.plates
For i=1 To plates.Count
 Set plate=plates(i)
 plate.postprocess
Next
```

Windows support

NC Express e³ 21.2 supports Windows 7 and Server 2012 to 2019 up to the latest Windows 10 and Windows 11 version.