NC Express

Software version release: 24.2

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Unfolding

Supported 3D formats and versions

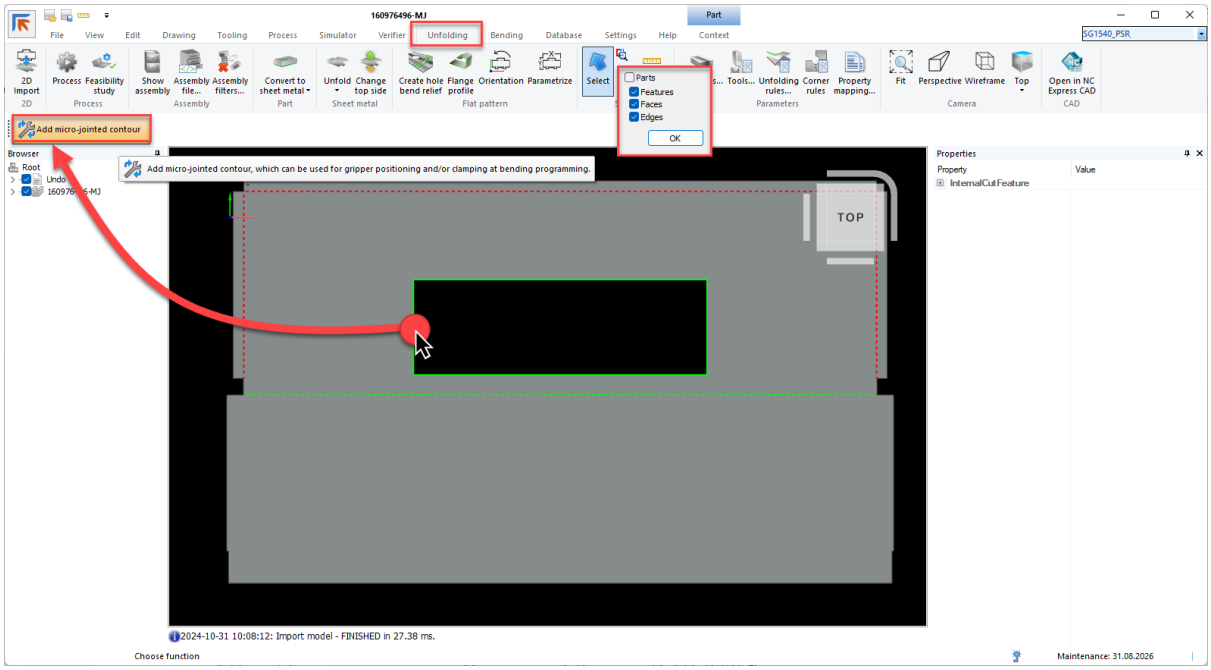
- Autodesk Inventor (*.ipt, *.iam), up to 2025
- SolidWorks (*.sldprt, *.sldasm), up to 2024
- Solid Edge (*.par, *.psm, *.asm), up to 2024
- Siemens JT (*.jt), up to 10.10
- Siemens NX (*.prt), up to 2406.4000
- PTC Creo (*.prt.x, *.asm.x), up to 11.0
- Catia (*.catproduct, *.catpart), V4 (4.15 to 4.26) and V5-3DX (R10 to R32, R2023, R2024), V6
- IGES (*.igs, *.iges), up to 5.3
- STEP (*.stp, *.step), AP203 (E1, E2), AP214 (up to E3), AP242 (E1, E2, E3, BO XML), AP209
- Spatial ACIS (*.sat), up to 2023 1.0
- Parasolid (*.x_t, *.x_b), up to 37.0

Micro-jointed area for manipulator clamping

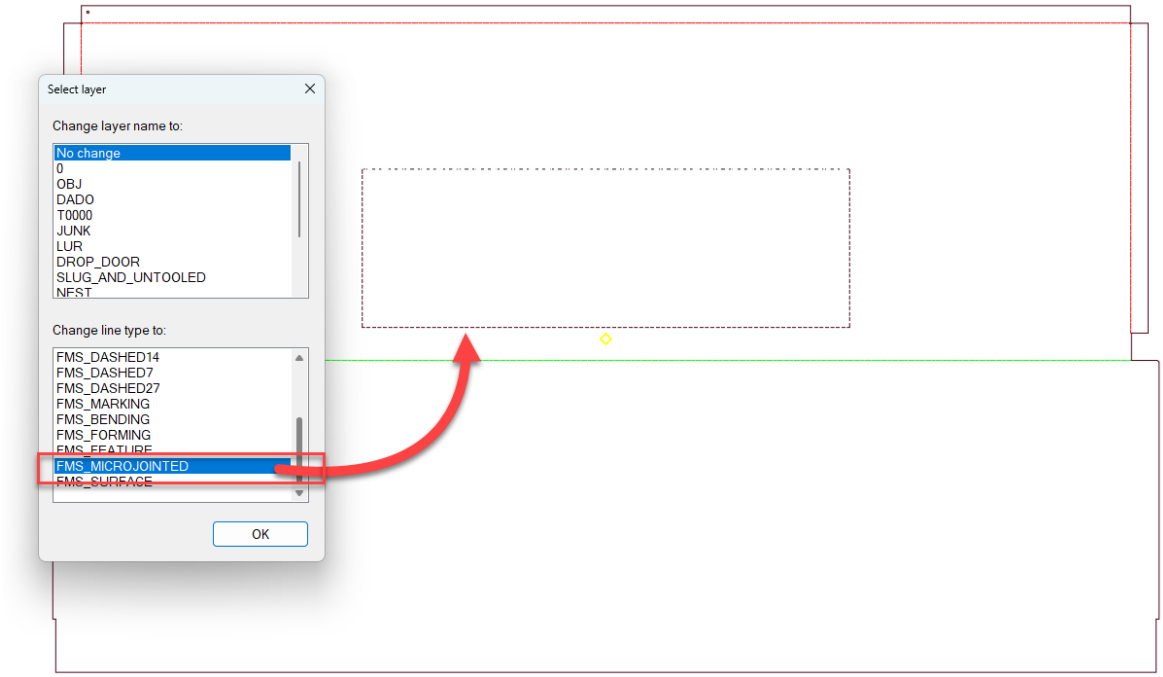
PREMIUM

You can set an internal contour to be micro-jointed in the ***Unfolding*** tab. This micro-jointed area can be used to clamp the part in the ***Bending*** tab. To do this:

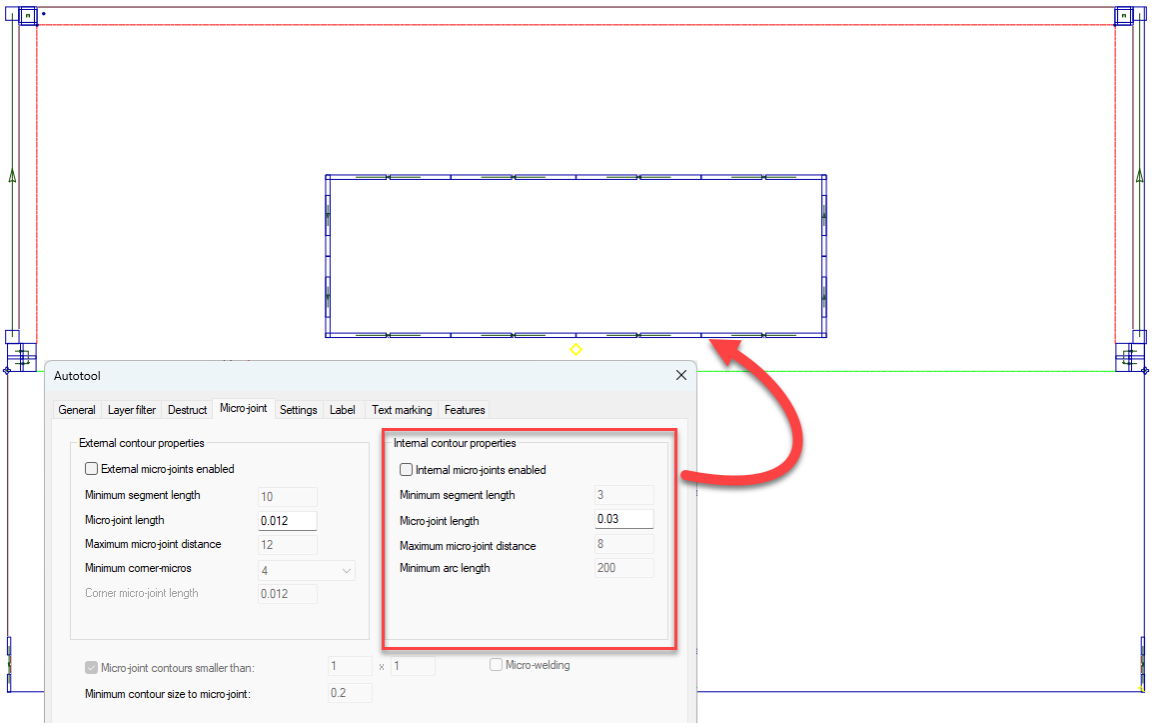
- Make sure that ***Parts*** is not selected in the selection filter.
- Select the desired internal contour.
- Click the ***Add micro-jointed contour*** button.



When you go to the ***Edit*** category, you can see that the internal contour is on the FMS_MICROJOINTED line type:



When you run ***Autotool***, it will apply micro-joints on this contour according to the settings in the ***Micro-joint*** tab:



The BEND machines

Panel bender programming

More information on programming EBe and BCe machines will be available in a separate article (***NC Express BEND*** and ***NC Express SYSTEM*** editions).

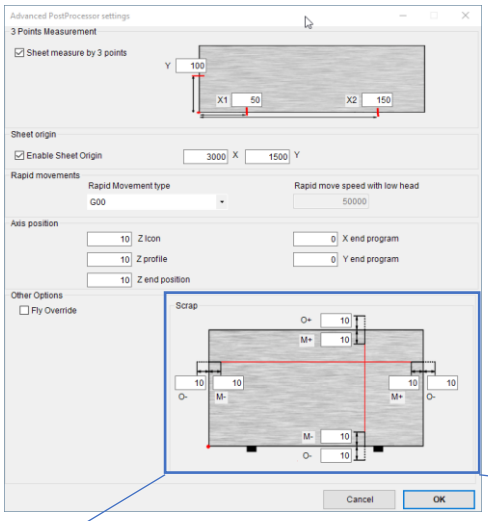
The LASER machines

Scrap settings for every edge of the sheet for Tulus-Open machines

The cutting section of a generic scrap/crop where the tracking sensor of the laser head is disabled is defined as a “frozen head section”. This section needs to avoid a collision when approaching a cut on the edge of the sheet.

This section is generated automatically by the post processor, considering the scrap settings defined inside the Advanced Post Processor Settings. As of this version, every edge of the sheet has its own parameters:

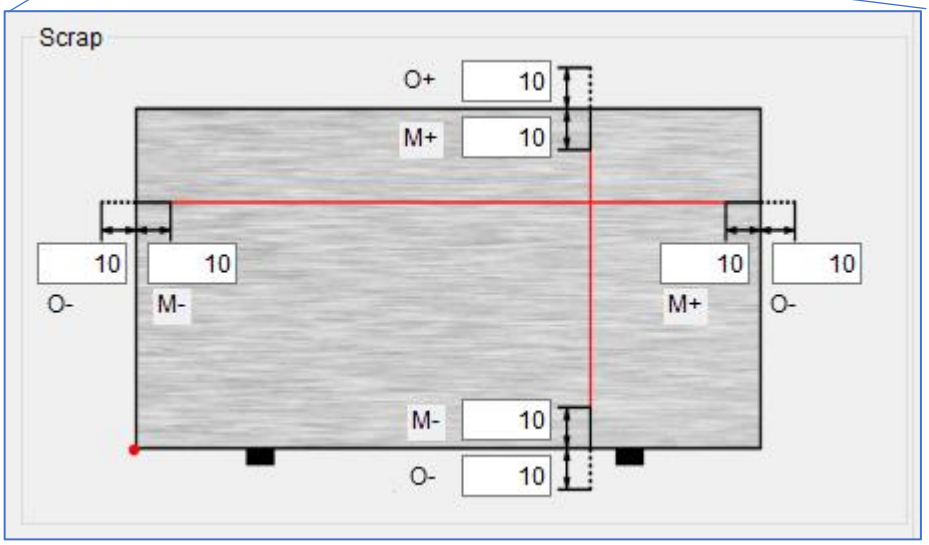
- **O** parameter means *oversize*, and it defines the frozen head section outside the sheet.
- **M** parameter means *margin*, and it defines the frozen head section inside the sheet.



Advanced Post Processor Settings

Scrap parameters for each side of the sheet:

- **O** (Oversize)
  It is the scrap cutting section outside the sheet with tracking sensor disabled
- **M** (Margin)
  It is the scrap cutting section inside the sheet with tracking sensor disabled

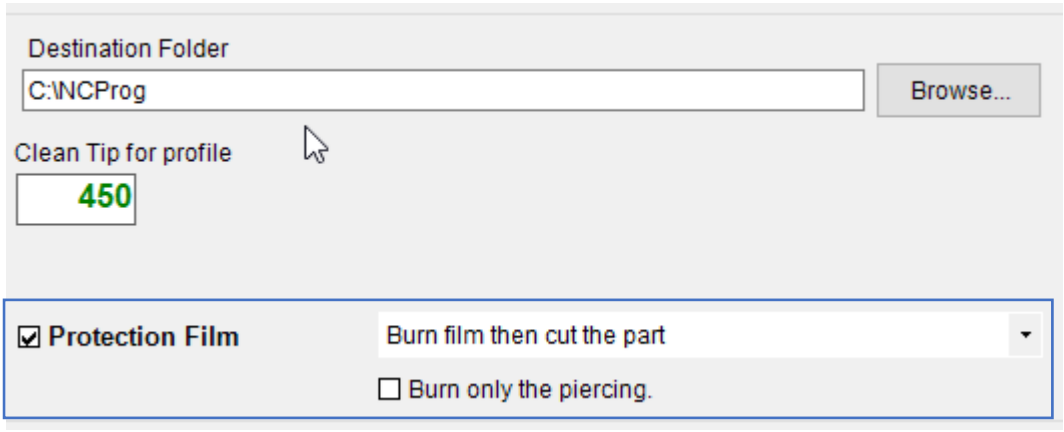


Laser surface processing Autotool with a selected line type/color

See description under the Laser-Punch Combi chapter: Laser surface processing with a selected line type/color in Autotool (page 112).

Note on Tulus-Open machines: Film burning/foil melting technology can be enabled/disabled directly on the machine (or inside post processor parameters)

- on all contours
- on all piercings.



When we set a dedicated layer for foil melting/film burning for the automatic tooling from CAD, film burning options should be disabled on the machine (or inside post processor) to allow the film burning of only the required section.

Platino Linear support

Platino Linear is available as a Tulus-Open machine as of this version.

Sinumerik One 3D Laser support

3D Laser Next machine series with Siemens Sinumerik One numerical control is available as of this version.

NC Express is the 2D cutting CAM for this type of machine. The post processor integrates the macros of the machine’s 2D cutting module.

The COMBI, punch-shear machines

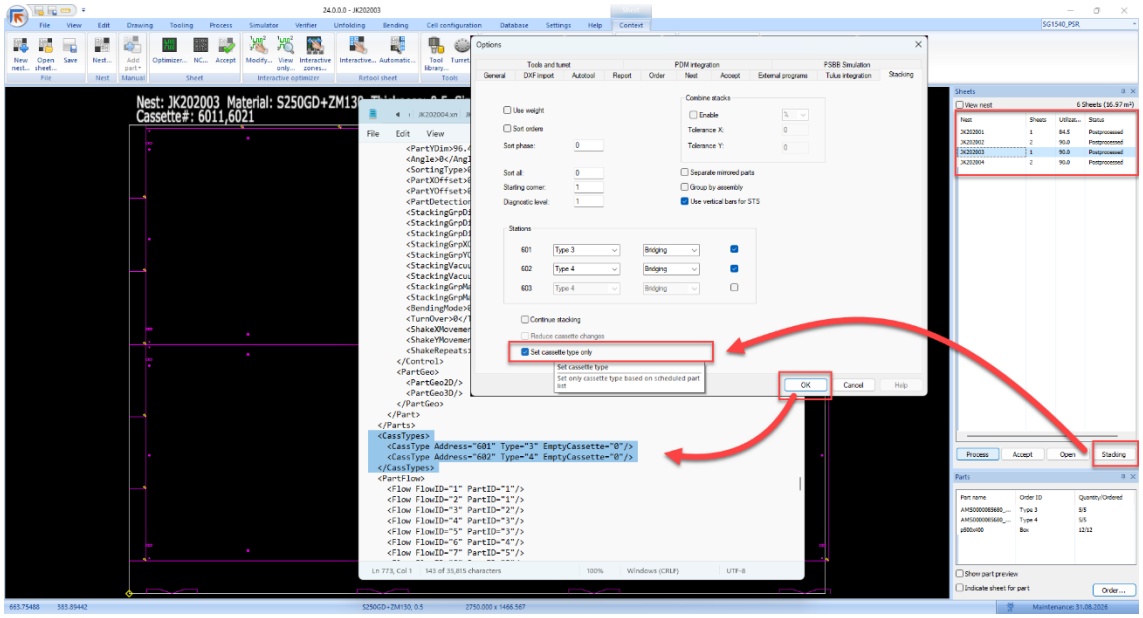
Support for bend relief machining with milling head

The milling head is a new option for Prima Power punch-shear machines. You can make the bend reliefs by machining the bend lines thinner to allow tighter bend radius than what the material's original thickness allows. The actual target is Alucobond and equivalent materials.

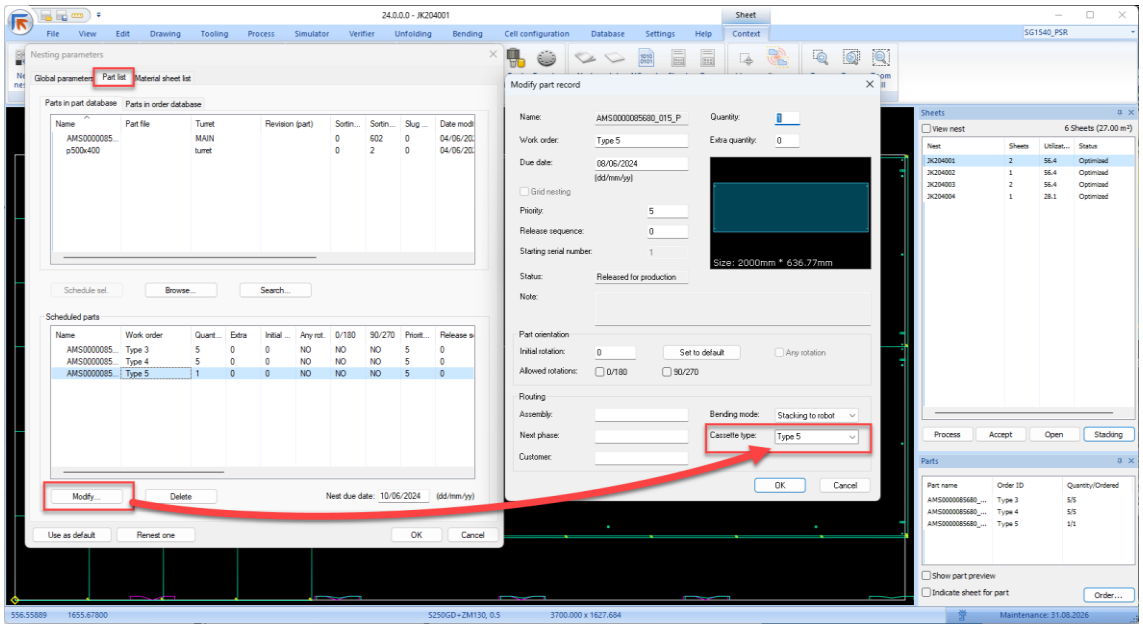
There is no automatic tool changer for the milling tool. Only one tool can be used in the nest.

Setting cassette types in CAM

You can do partial ***CAM Stacking***, which only determines the used cassette (but does not calculate stacks). You can do this by selecting ***Set cassette type only*** in the ***Stacking*** dialog:



After this, you can select ***Cassette type*** in the ***Nest - Part list - Modify*** dialog:



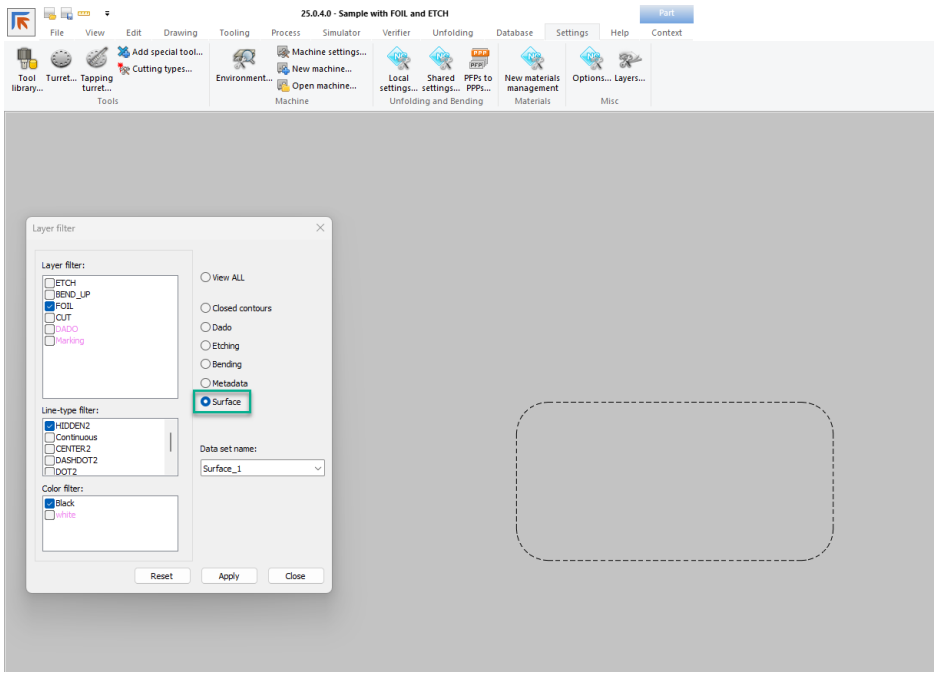
There is a separate “NC Express Stacking” document available from Prima Power to guide you through settings up stacking in CAM.

The COMBI, laser-punch machines

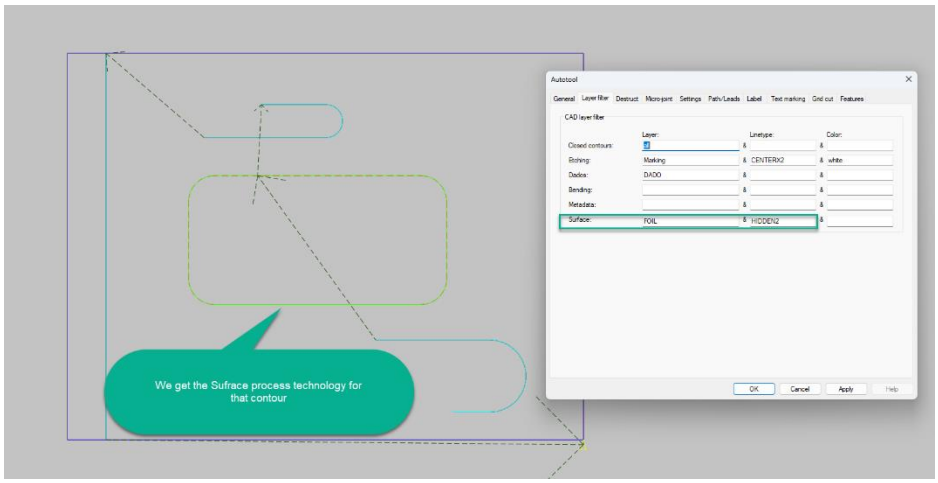
Laser surface processing with a selected line type/color in Autotool

You can set the layer filter for ***Autotool*** to make the surface processing as main process technology for selected contours. This is needed when the foil must be removed from certain area of the part.

Layer filter settings for surface processing after geometry import:

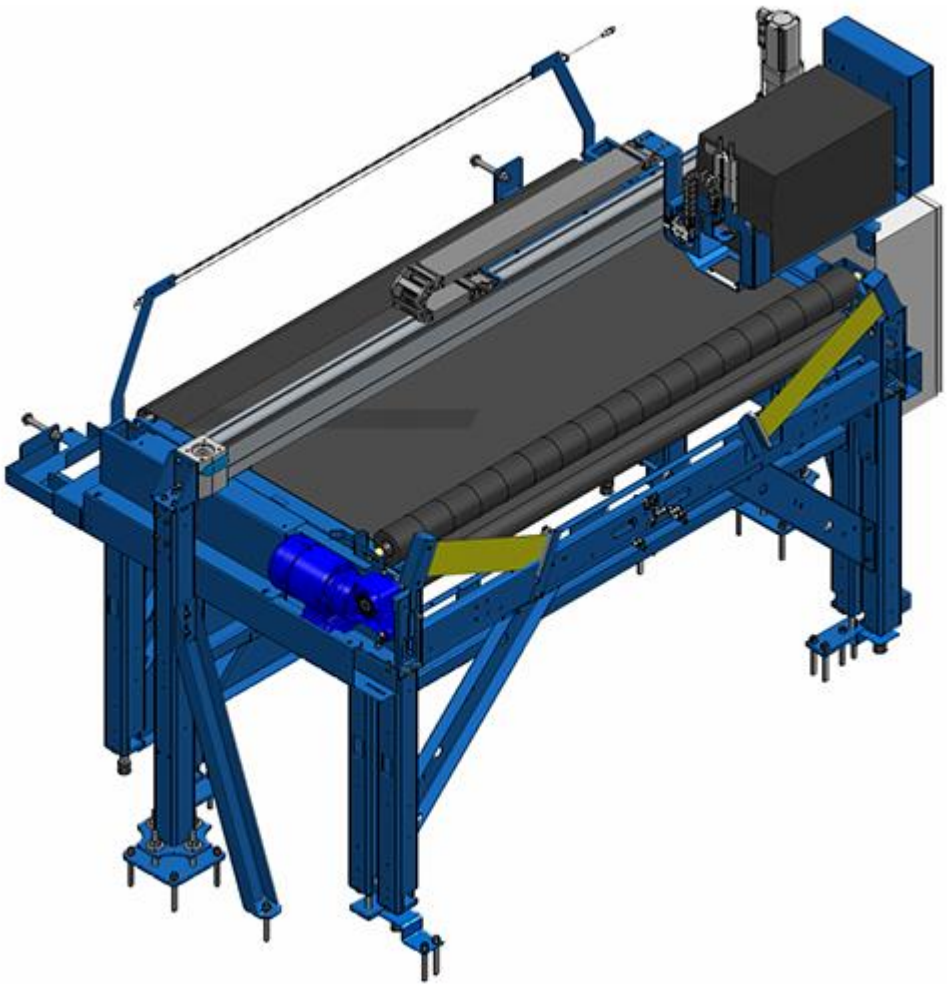


Same ***Surface*** layer setting in the ***Autotool*** dialog:



External part marking device

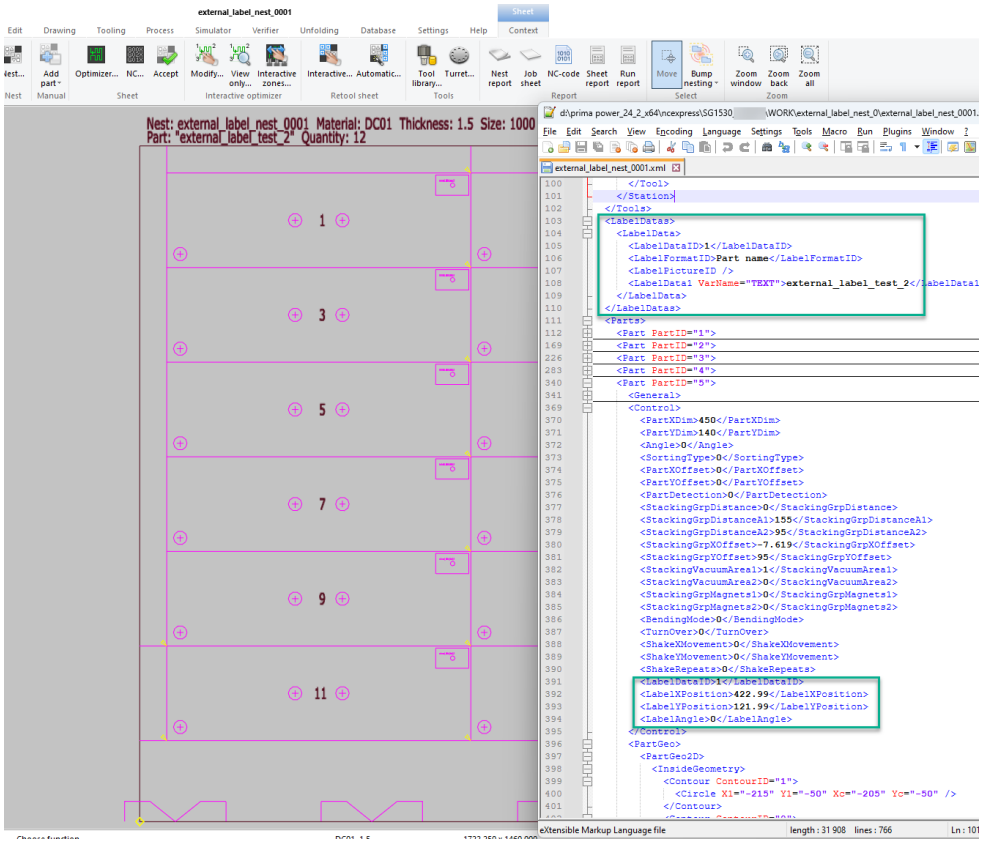
Part marking device support for the conveyor (after the right angle shear).



There is a new EXTERNAL_MARKING 1 parameter in the label configuration file (.ink).

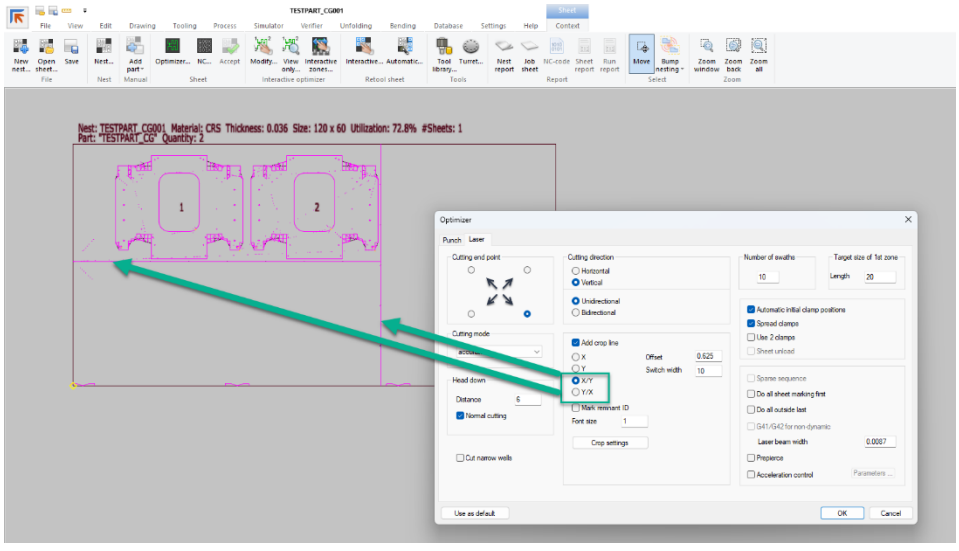
```
# Laser mark device type 1=InkJet, 2=LabelPrinter, 3=LaserMarker 4=ExternalMarking
DEVICE_TYPE 2

# device has one printing head
HEAD_CONFIGURATION 1
# device can print any direction/rotation
LIMIT_PRINT_DIRECTION 2
# clamp safety zone in mm (X-dir, X-dir,Y-dir)
CLAMP_PROTECTION    0   0   0
#Activate EXTERNAL_MARKING 1 when NC-code do not need to have the marking commands.
EXTERNAL_MARKING 1

#Label name inside printer LABEL1-
# define 2 templates (size, number of lines and prompt for each line)
# define last template as default choice+
```

When it is on, you do not output the marking commands to the NC code, but the program header has the label data's as usual and part data has the LabelID and the X/Y location of the label in the part.



Laser crop line in both X and Y direction

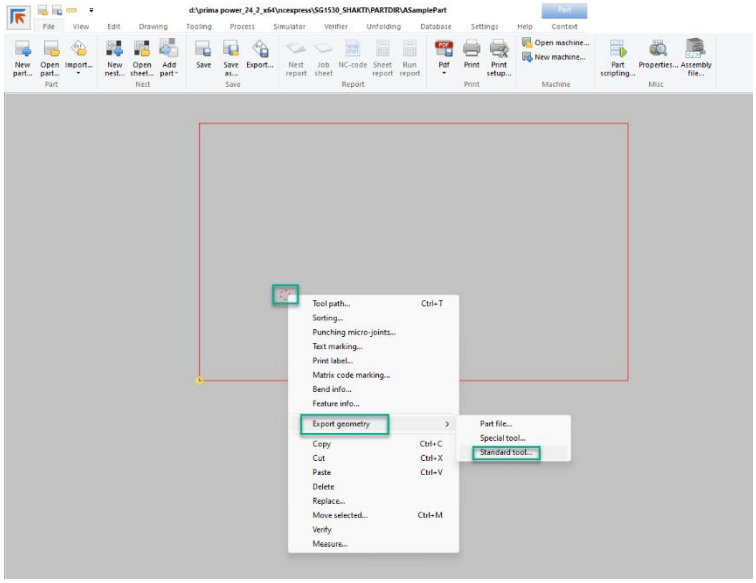
Optimizer can now make micro-jointed crop lines in both the X and Y direction.



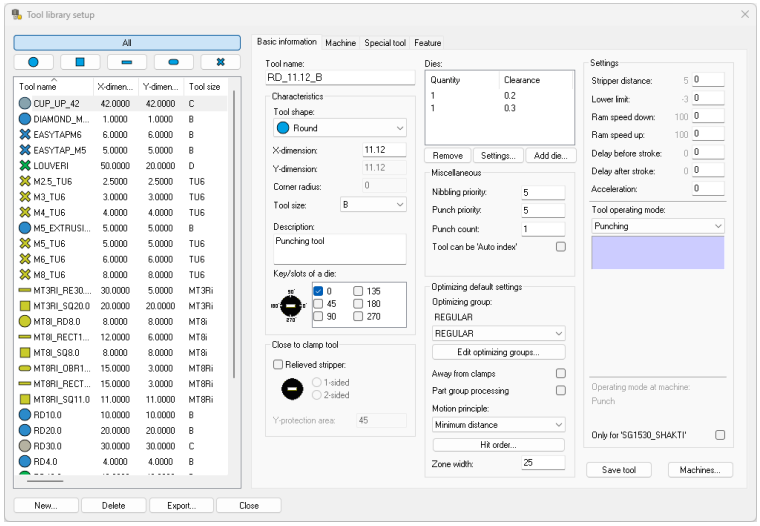
Other usability enhancements

Creating standard tools in Export geometry

You can create standard tools (round, square, rectangular and obround) directly from a part geometry. Select the geometry that you want to export and right-click it to open the dialog. Select ***Export geometry*** and ***Standard tool***.

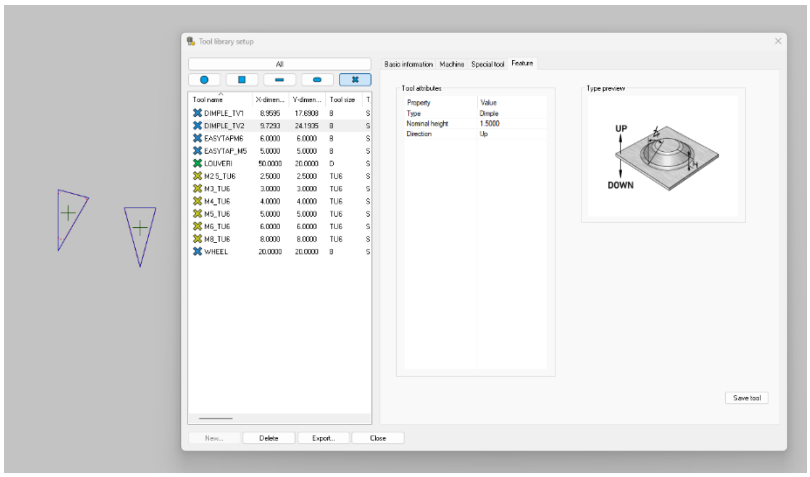


A prefilled tool dialog opens, the values of which are taken from the tool nearest in size in the tool library. You can change the prefilled values according to your needs.

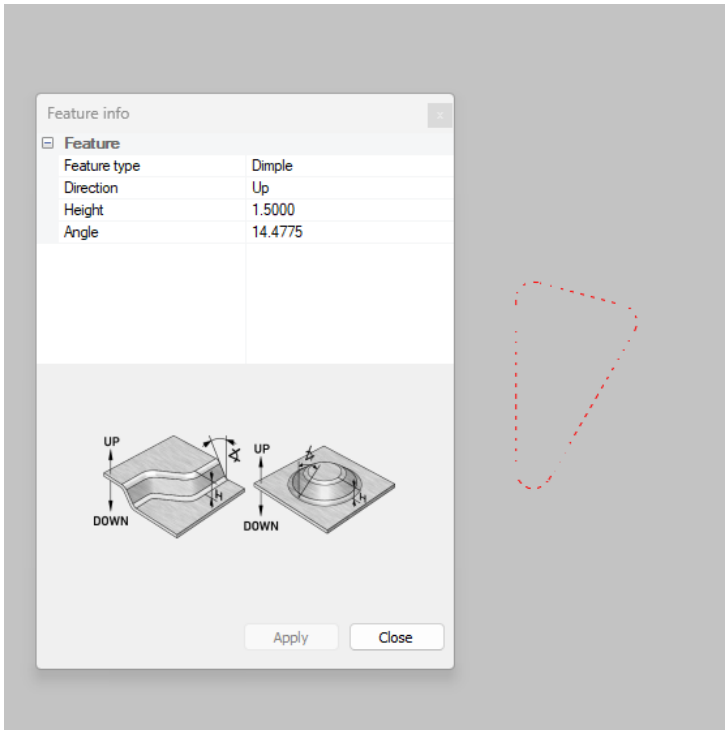


Triangular-shaped dimple feature recognition in Autotool

Set the ***Feature*** properties in the tool library to match the feature set in the geometry:

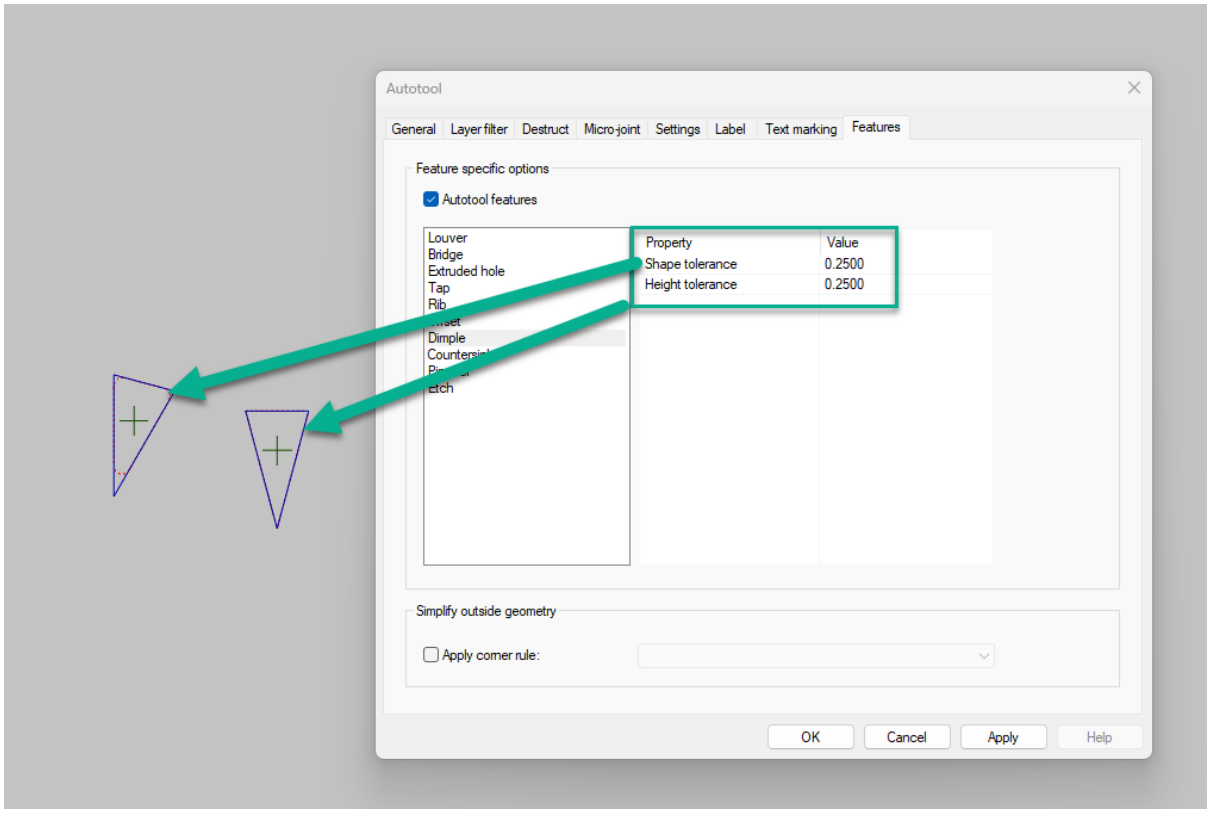


Right-click to enter the ***Feature info*** in the selected geometry:



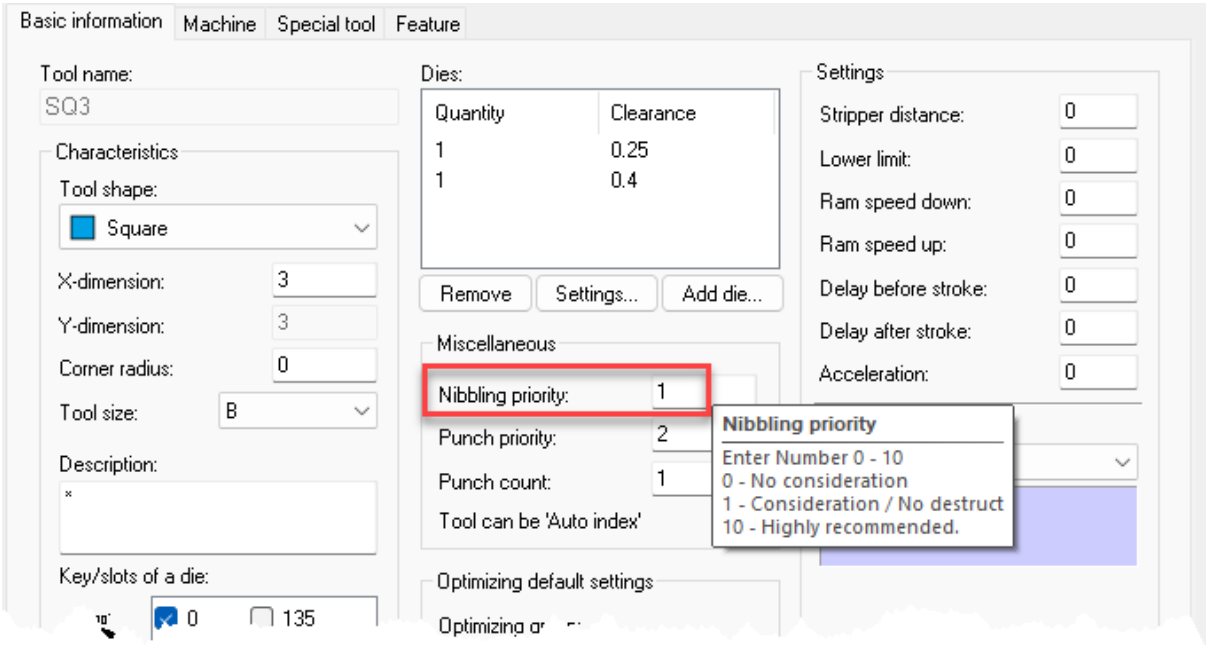
When the geometry feature info matches the tool feature settings and the tool geometry matches the accuracy given in ***Autotool*** - ***Features*** - ***Dimple*** settings, Autotool puts the triangular tool to the matching geometry.

Note: The tool matching algorithm for dimple triangles ignores rounded corners in the part geometry by converting them temporarily into sharp corners. The conversion is performed by extrapolating adjacent sides of the triangle and using their intersection point as the “real” corner. **Only purely triangular tools are supported.**



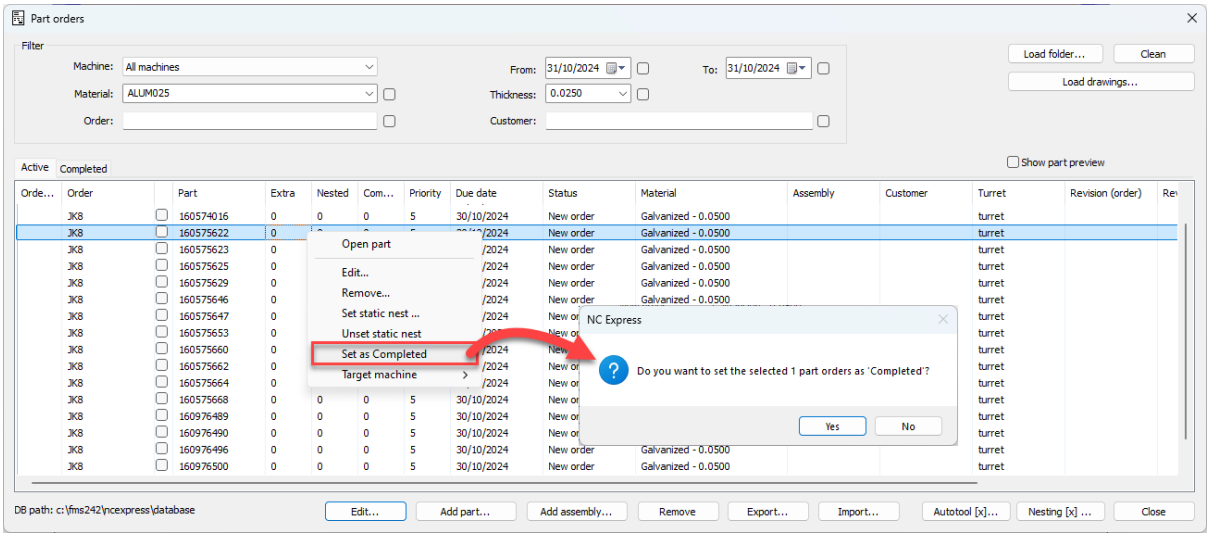
Nibbling priority 1 and 2 in Autotool

Tools with nibbling priority 1 are no longer used on destruct patterns in Autotool. They can still be used for simple nibbling.



Marking selected parts as completed in the order database

You can mark selected parts as ***completed*** in ***Database - Orders*** with a right-click:



Windows support

NC Express e³ 24.2 supports Windows 7 and Server 2012 to 2022 up to the latest Windows 10 and Windows 11 versions.

This version is also available as a 64-bit build. New installations are recommended to be made in 64-bit, whereas updates remain in 32-bit.

If you update an existing installation to 64-bit and it uses customized report templates, be prepared to redo those report templates for future reporting.