NC Express e^3

Software version release: 22.1

20. April 2022

New features in NC Express e³ 22.1

Unfolding

Supported 3D formats and versions

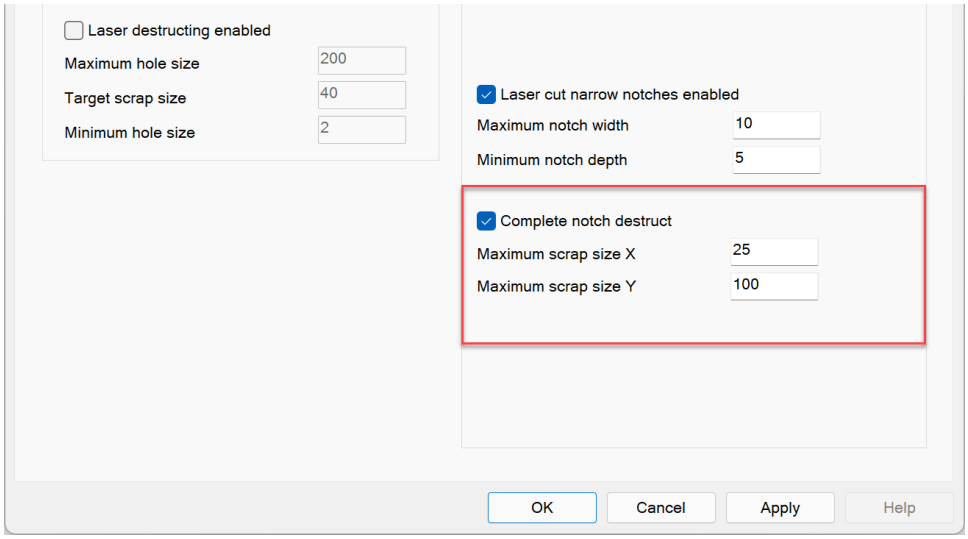
- Autodesk Inventor (*.ipt, *.iam), up to 2022
- SolidWorks (*.sldprt, *.sldasm), up to 2022
- Solid Edge (*.par, *.psm, *.asm), up to 2022
- Siemens JT (*.jt), up to 10.7
- Siemens NX (*.prt), up to 2000
- PTC Creo (*.prt.x, *.asm.x), up to 8.0
- Catia (*.catproduct, *.catpart), V4 (4.15 to 4.26) and 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

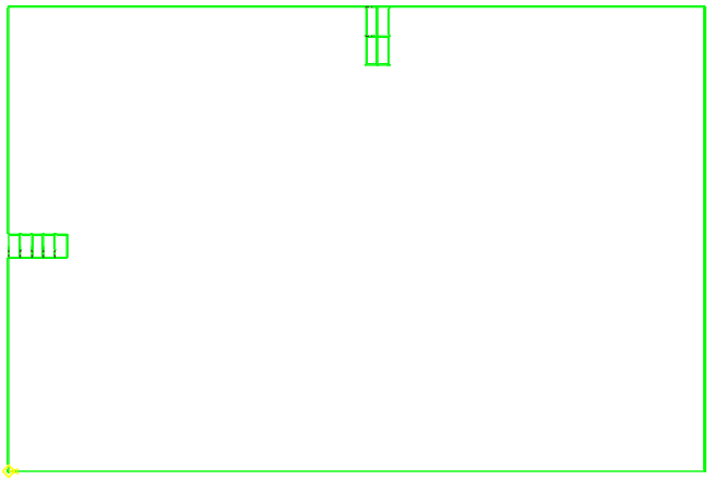
Laser corner destruct with separate X/Y size, LG+PSR

Laser corner destruct routine has been upgraded to allow the setting of minimum scrap size values separately in the X and Y directions.

Maximum scrap size values can be set on the ***Destruct***-page of the ***Autotool***-dialog:

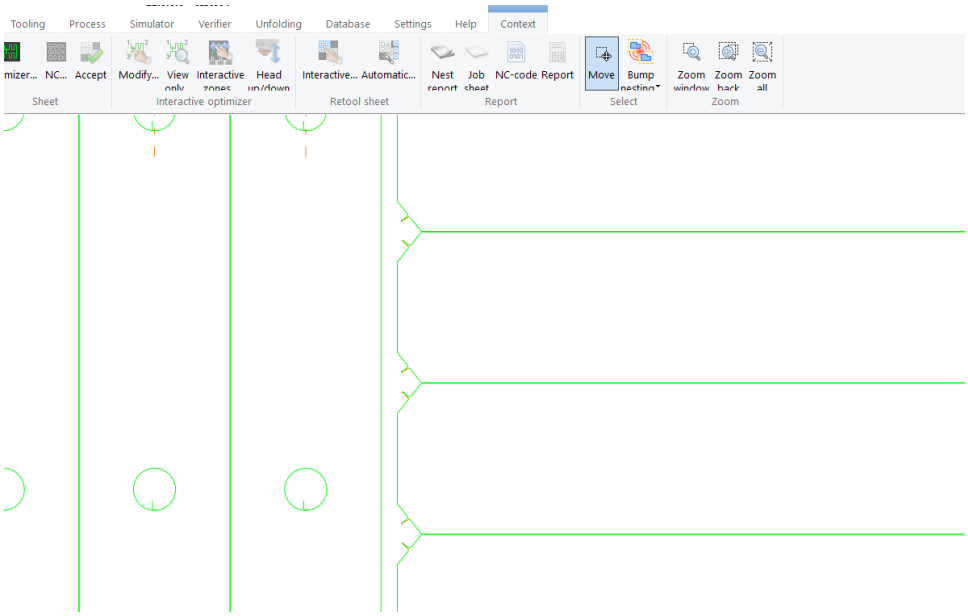


The destruct pattern now depends on the notch orientation:



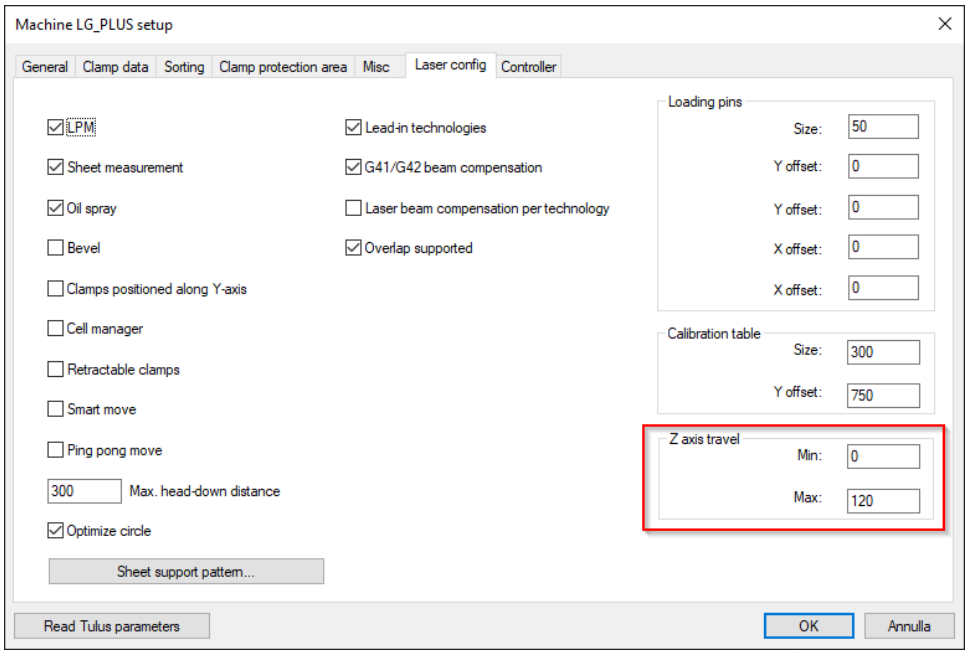
Preserve micro-joints on Laser commonline

Micro-jointed parts can be automatically nested on the common-line if micro-joints are placed in the part corner notches.



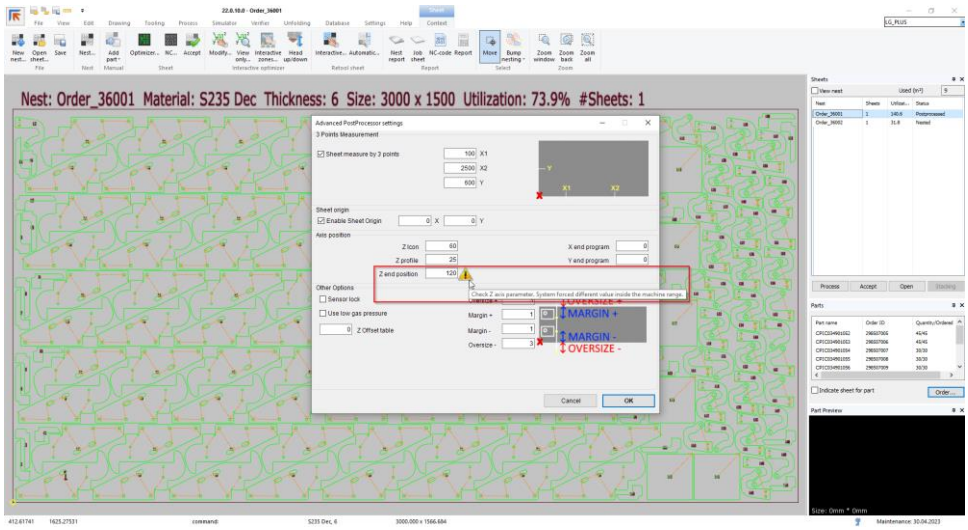
Z-Axis travel setting

The dialog ***Machine parameters*** provides a new section about ***Z-axis travel*** configuration for laser machines with Open-Tulus or Prima P20L/P30L control.



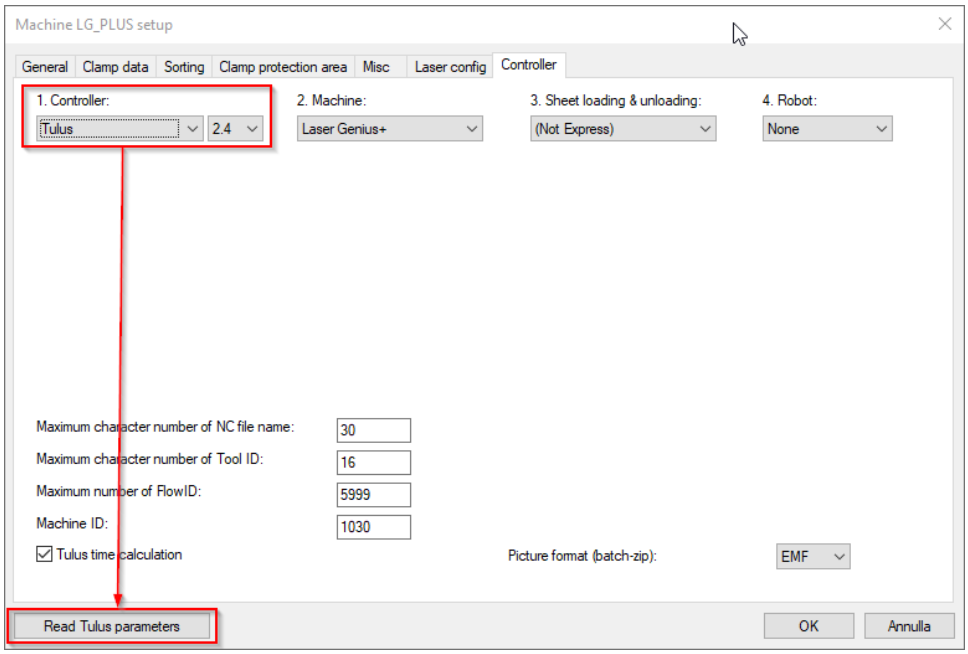
A default value is defined depending on the machine type.

When opening an existing nest, postprocessing automatically updates Z-axis positions (***Z end position***) within the Z-axis travel.



Reading “TulusParameters.xml”

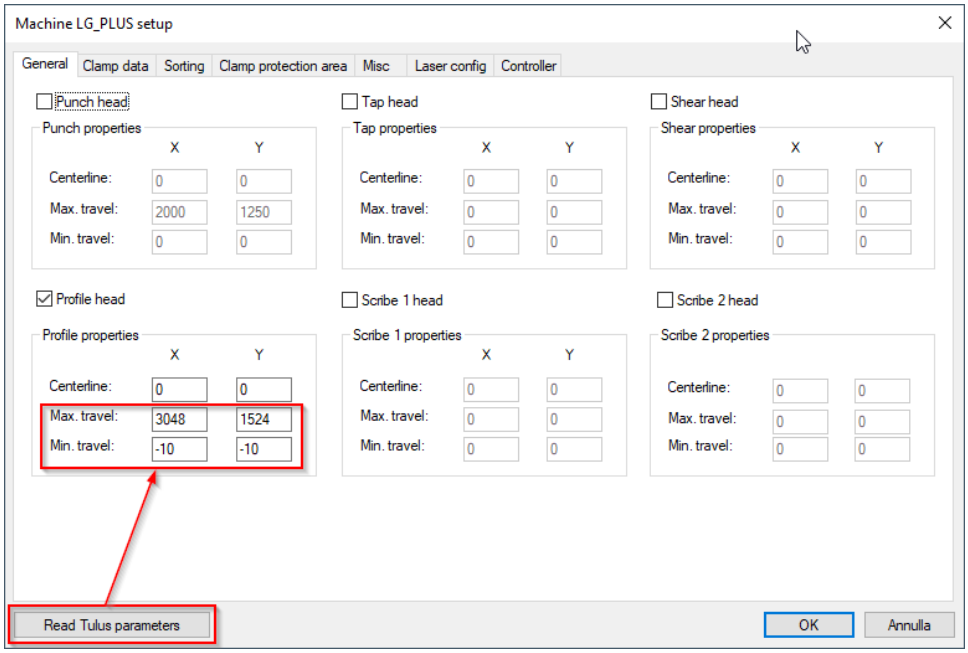
The dialog ***Machine parameters*** provide the button ***Read Tulus parameters*** for laser machines with Open-Tulus control.

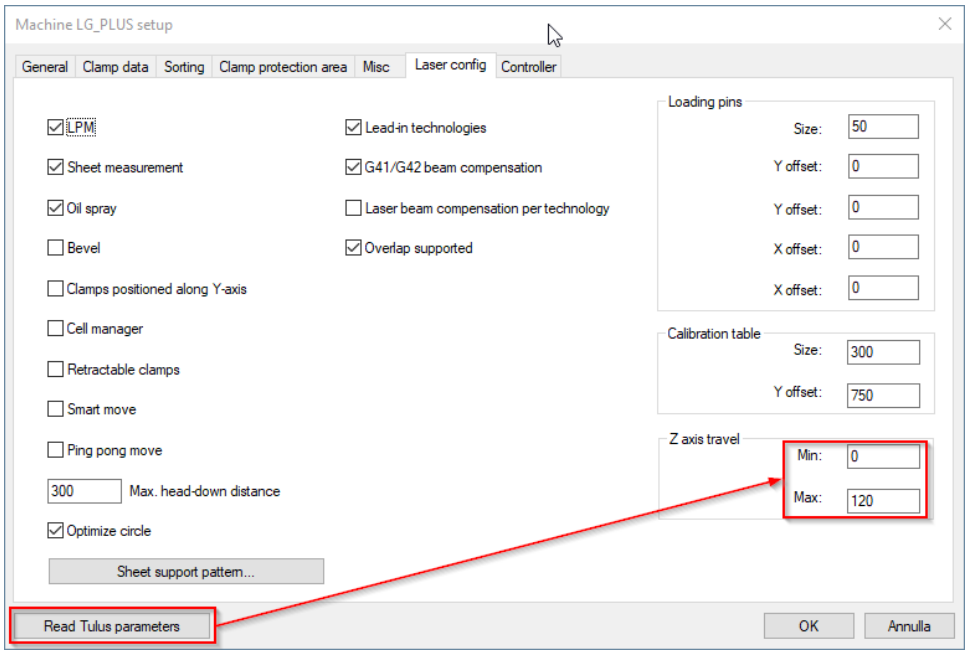


It updates the NC Express data concerning the axis travel of X,Y,Z with the values of the real machine contained inside *TulusParameters.xml*. The procedure steps are:

- Press the ***Read Tulus parameters***-button
- Browse *TulusParameters.xml* inside File System. The selected *TulusParameters.xml* will be copied inside the *WORK* folder of the current machine
- In case of different values, a confirmation pop up appears to update NC Express data.

The updated values inside the dialog are as follows:

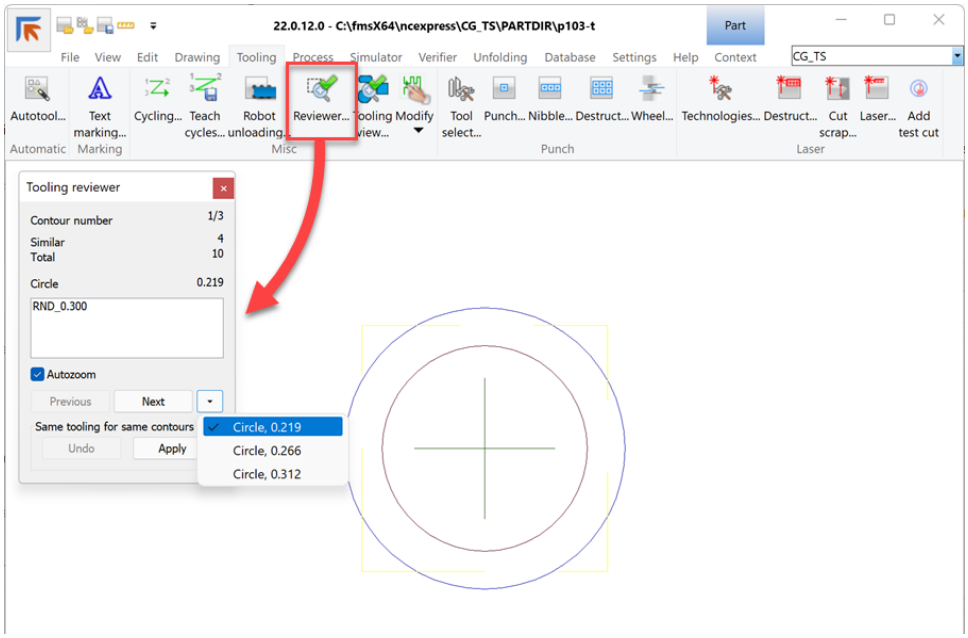

Machine LG_PLUS setup
General
Clamp data
Sorting
Clamp protection area
Misc
Laser config
Controller
Punch head
Punch properties
X
Y
Centerline:
Max. travel:
Min. travel:
Tap head
Tap properties
Shear head
Shear properties
Profile head
Profile properties
Scribe 1 head
Scribe 1 properties
Scribe 2 head
Scribe 2 properties
Read Tulus parameters
OK
Annulla


Machine LG_PLUS setup
General
Clamp data
Sorting
Clamp protection area
Misc
Laser config
Controller
LPM
Sheet measurement
Oil spray
Bevel
Clamps positioned along Y-axis
Cell manager
Retractable clamps
Smart move
Ping pong move
300
Max. head-down distance
Optimize circle
Sheet support pattern...
Lead-in technologies
G41/G42 beam compensation
Laser beam compensation per technology
Overlap supported
Loading pins
Size:
50
Y offset:
X offset:
Calibration table
300
750
Z axis travel
Min:
Max:
120
Read Tulus parameters
OK
Annulla

The COMBI, Punch-Shear machines

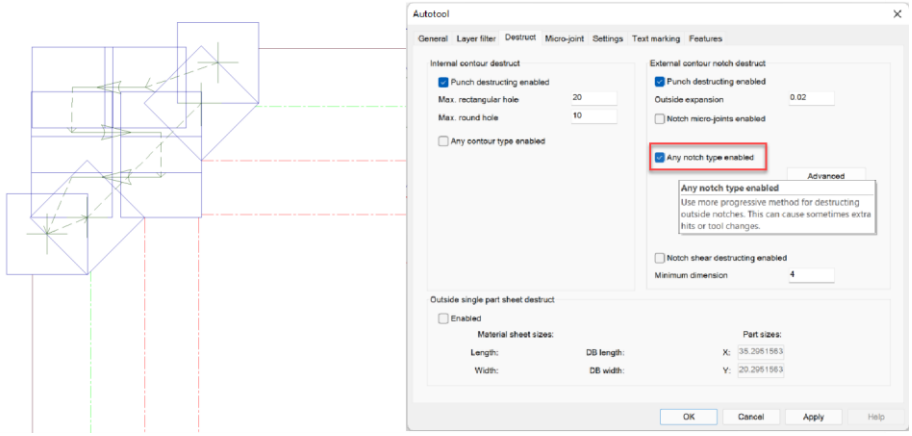
Tooling reviewer

Tooling – ***Reviewer*** allows you to easily inspect each different internal contour in a part. If you choose to change the tool hits or laser on any contour, you can press the ***Apply***-button to propagate it to all similar contours.



Punch destruct enhancements

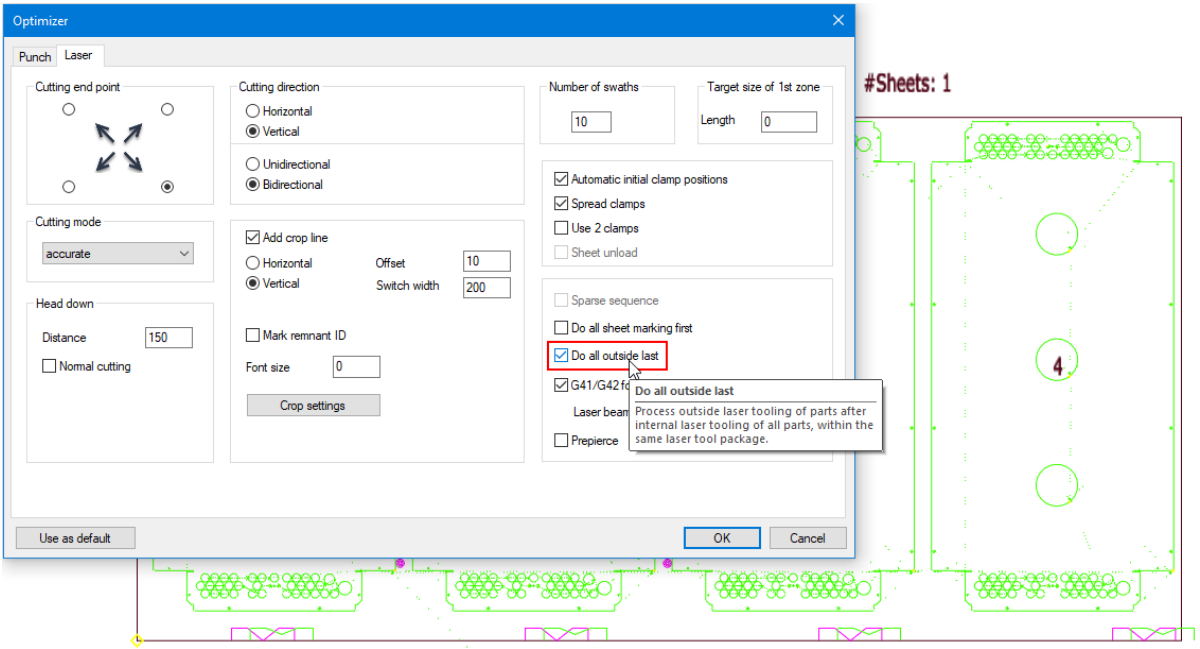
The ***Autotool-Destruct-Any notch enabled*** has various smaller enhancements in order to make more reliable punch destruct patterns.



The COMBI, Punch-Laser machines

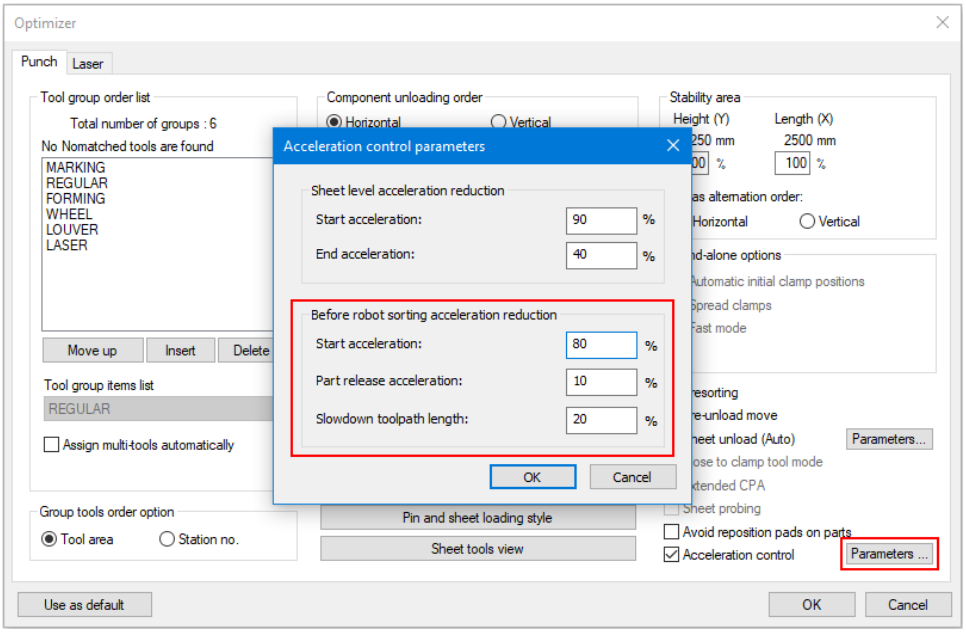
Cut all outside last

As default, the internal laser tooling of parts is made part-by-part before sorting each part. The skeleton of a sheet starts to weaken as the processing of a sheet advances. If there is a lot of internal laser tooling, movements made to process the internal tooling can be problematic for the stability of a weakened skeleton. Now optimizer has a new setting, ***Do all outside last***, to do all the internal laser tooling of parts (within the same laser tooling package) before the external laser tooling. This setting helps to minimize processing movements after a skeleton starts to weaken when parts are released.



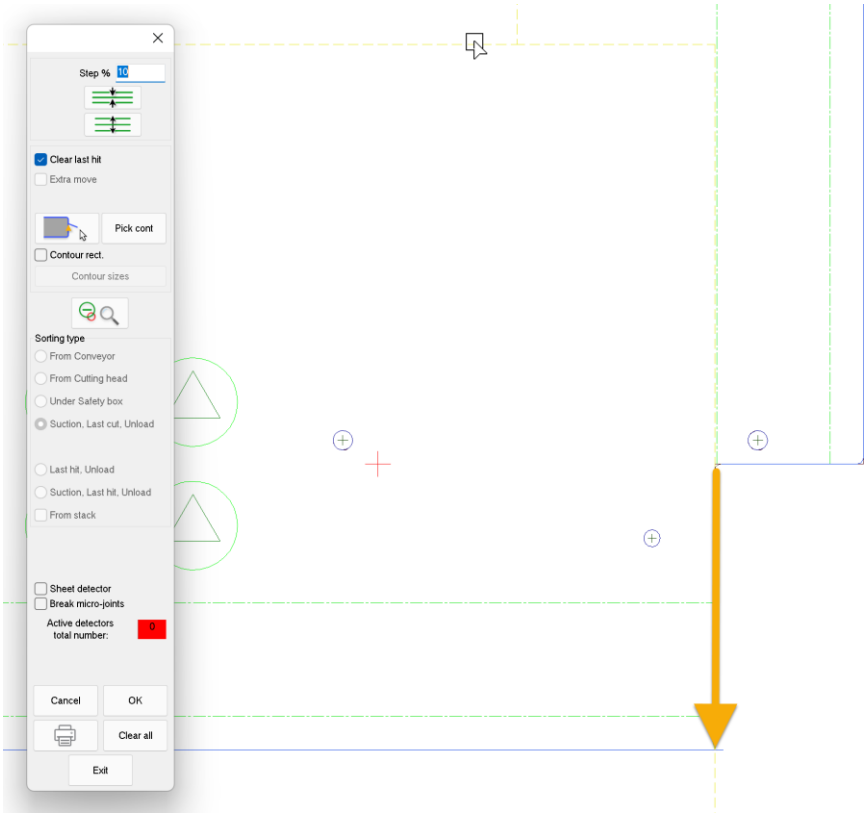
Before punch-robot-sorting acceleration reduction

When a part is released by punching, the sheet may start to deform before releasing the part. This may cause inaccuracies to occur during nibbling. Now optimizer has a new setting, ***Before robot sorting acceleration reduction***, to reduce acceleration before the punch-robot-sorting of a part. Acceleration can be linearly reduced on ***Slowdown toolpath length*** (percentage of part circumference), before a part is released. If ***Sheet level acceleration reduction*** is in use (End acceleration is less than 100%), smaller effective acceleration is used.



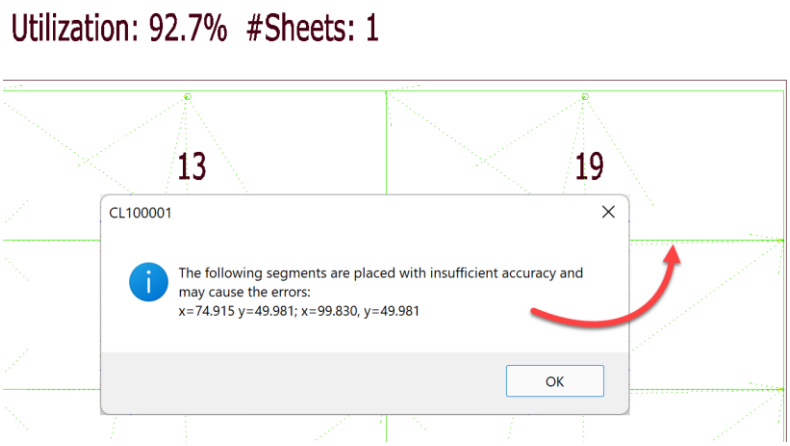
RALC improvements

Robot assisted last cut (RALC, sorting type 14) is now better placed in ***Autotool***. This concerns cases when laser cutting is clockwise or counter-clockwise, corners with rounding fillets or without.



Tolerate imprecise LP commonline nests

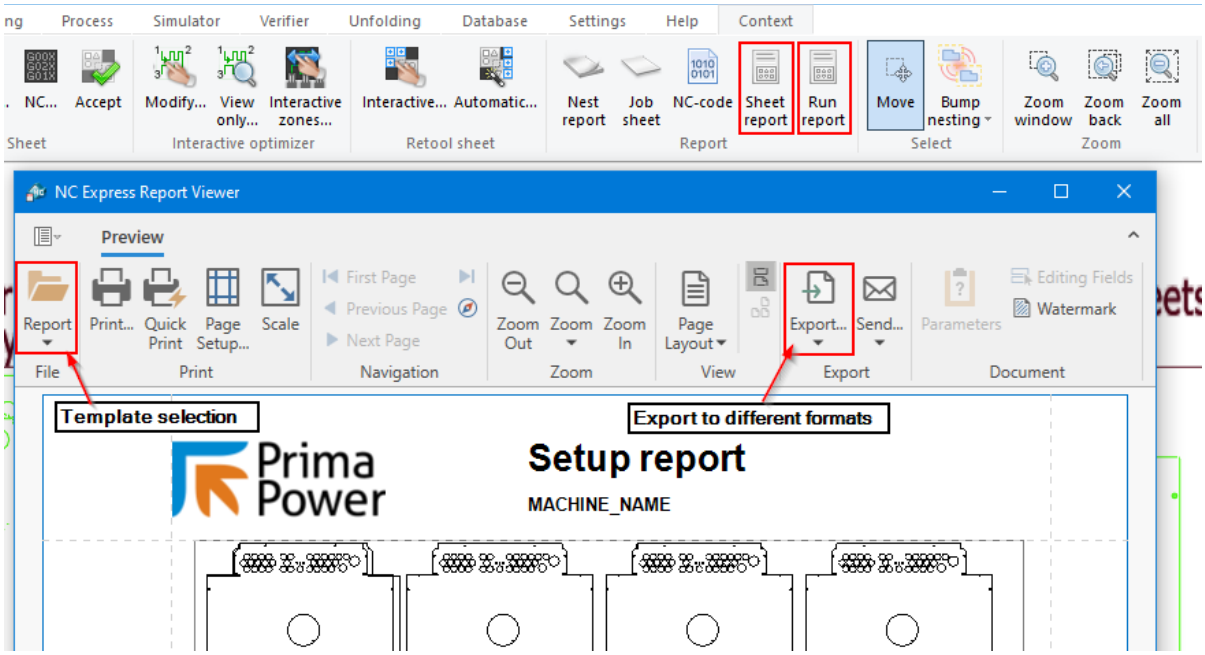
Hand-made Laser-Punch commonline nest layouts can sometimes accidentally be imprecise, which makes creating a correct commonline cutting difficult or impossible. Software can now warn of such a situation, indicating the violating location.



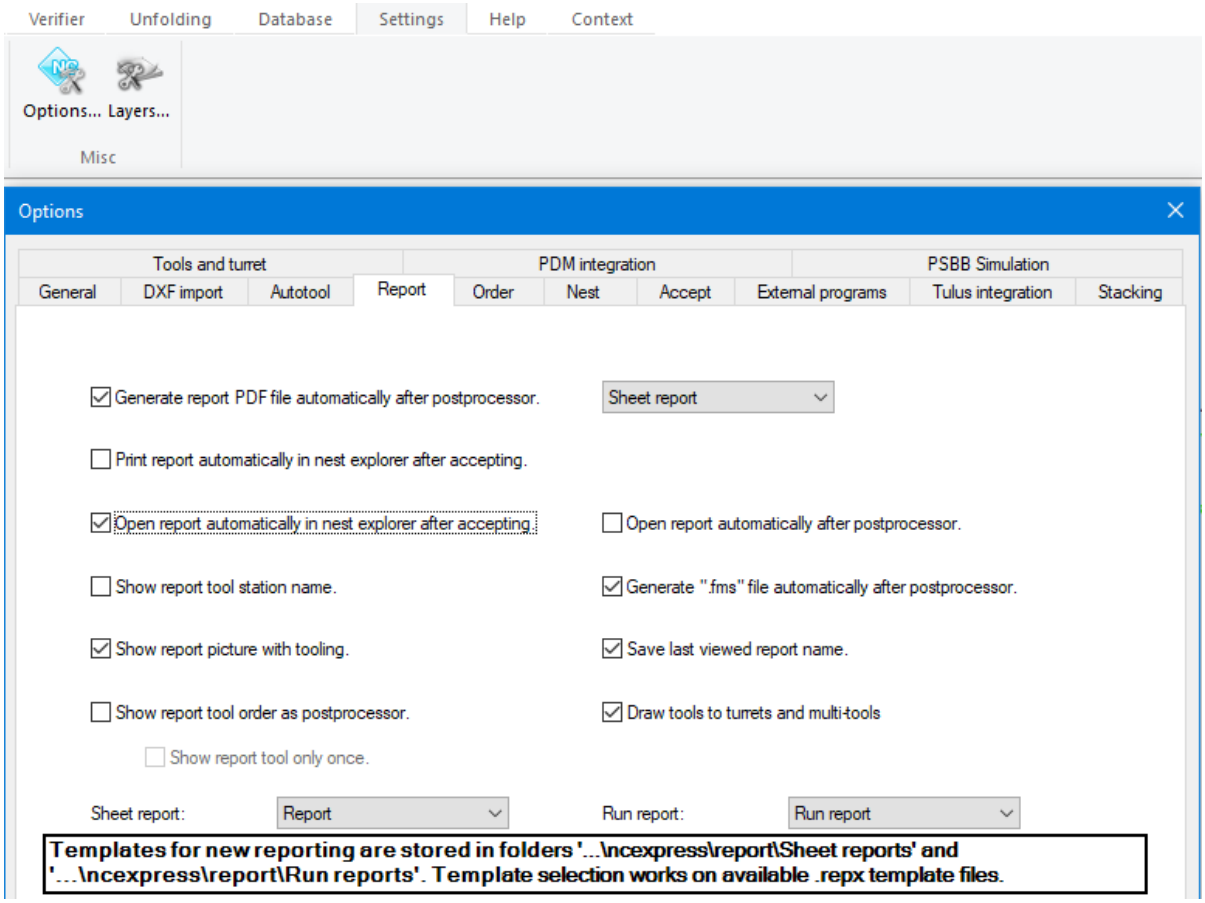
Other usability enhancements

New sheet and run reporting

64-bit NC Express has a new reporting functionality which uses new report templates. When new reporting is in use, there are two reporting buttons in the ***Context***-category. ***Sheet report*** is to produce a report for an active nested sheet and ***Run report*** is to report information of all sheets in a nest. ***NC Express Report Viewer*** is launched to show the preview of a report. In the Report Viewer a user may choose the template to be used, export the report to different formats, print the report and so on.

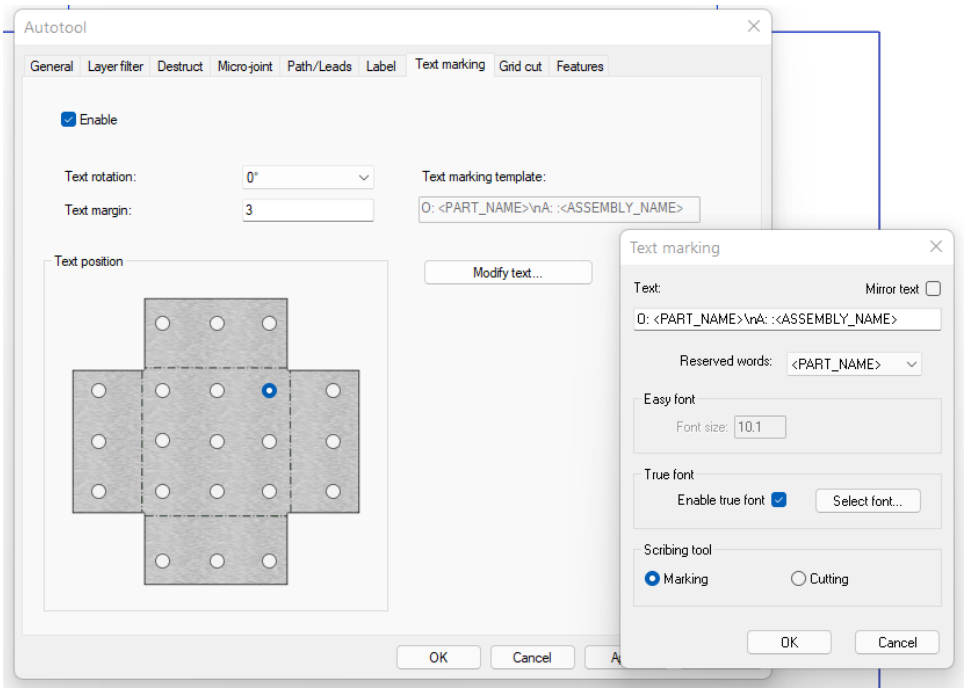


Existing reporting settings in the ***Settings-Options-Report***, remain the same. New reporting template files have the '.repx' extension. Template files are stored in folders '...\ncexpress\report\Sheet reports' and '...\ncexpress\report\Run reports'. It is possible to modify REPX-templates with ***NC Express Report Designer*** (included in NC Express e³ installation). More information is available upon request.



Text marking in Autotool

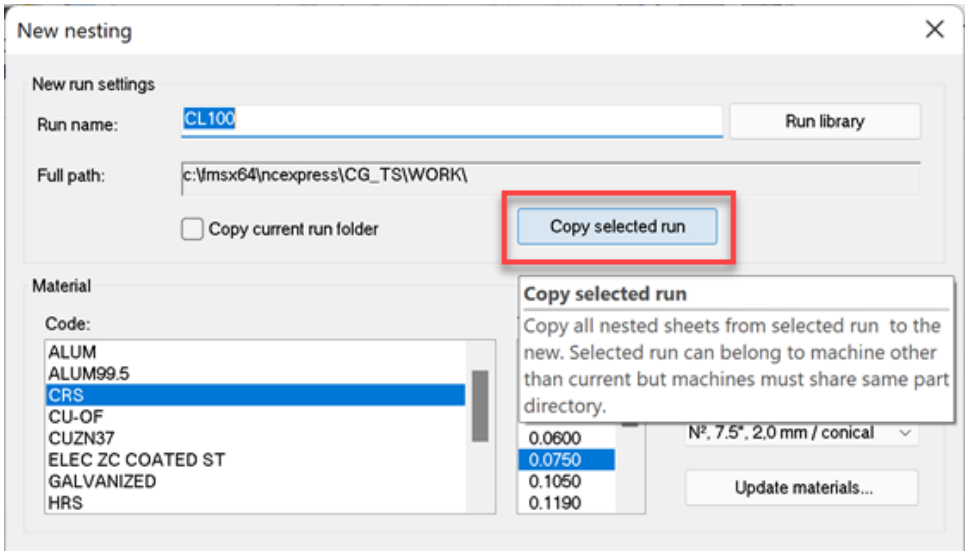
Automatic part tooling can include text marking. The text position and content is defined on the ***Text marking***-page in ***Autotool***.



Text marking can include fixed text and part metadata. Text can be split into several lines by including the special character ‘\n’.

Copy nest run from another machine

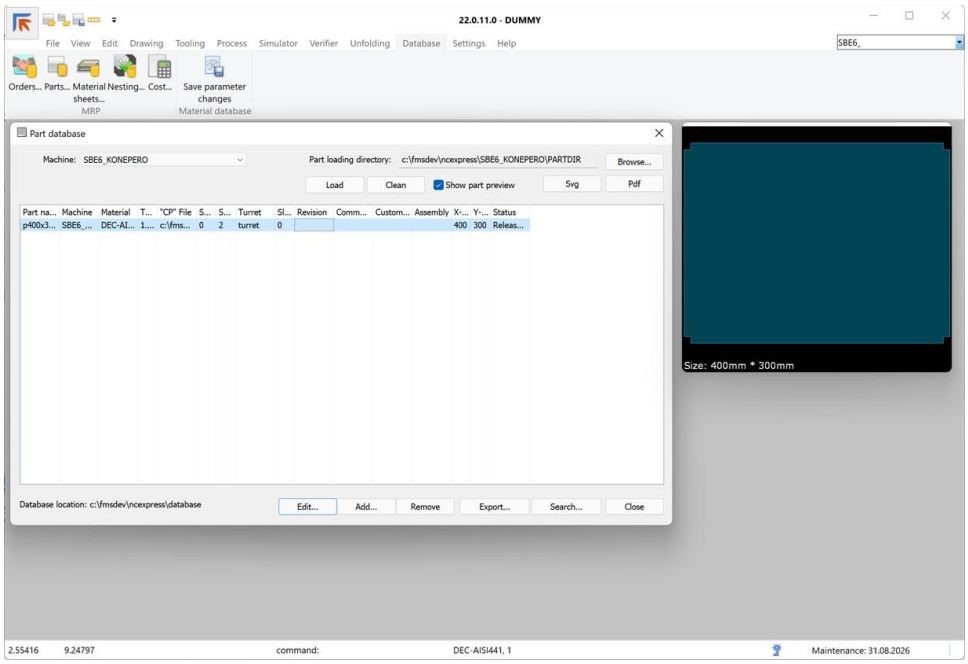
In multi-machine installations, it is now possible to copy a run folder to the active machine from any other machine. In the ***New nest***-dialog click the ***Copy selected run***-button and then select the source run folder.



After the source run folder has been selected the material code and/or thickness can be edited.

Show preview in part database

Part preview is now shown in ***Database-Parts***.



Windows support

NC Express e³ 22.1 supports Windows 7 and Server 2012 to 2019 up to the latest Windows 10 and Windows 11 version.

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

If you update an existing installation to 64-bit and it uses customized report templates, please be prepared to remake those report templates for new reporting. See chapter *New sheet and run reporting* for more information.