Bystronic Laser AG
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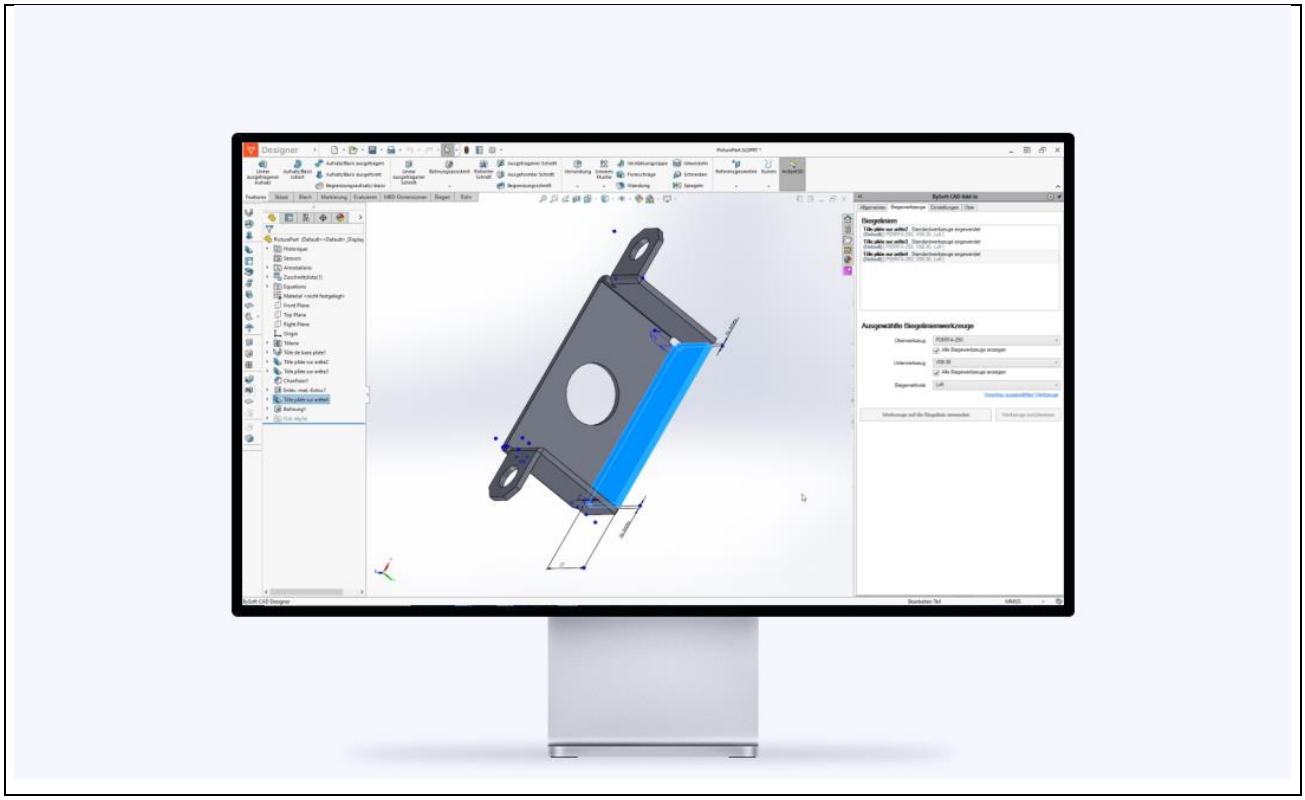
Switzerland

BySoft CAD

Version: 2.0.2 | June 2022



BySoft CAD

Contents

1 General

The following pages contain a description of the new features, enhancements, and improvements implemented in the new version of the BySoft CAD application.

The BySoft CAD application contains two parts:

- BySoft CAD Designer:
  - This is the OEM Version of SolidWorks.

- BySoft CAD Add-in
  - This add-in for BySoft CAD Designer or the standalone version of SolidWorks allows bending information to be defined into parts or setup tube parts and to be transferred into the BySoft CAM application.

1.1 Available languages

The BySoft CAD application is available in the following languages:

- Chinese
- Czech
- Danish
- Dutch
- English
- French
- German
- Hungarian
- Italian
- Japanese
- Korean
- Polish
- Portuguese
- Russian
- Spanish
- Swedish
- Taiwanese
- Turkish
- Vietnamese

1.2 System requirements

Operating systems	
Windows 10	64bit
Minimum hardware	
Processor	Intel i5 with 4 cores minimum Intel i7 6 cores recommended
Memory	8GB minimum ≥ 16GB recommended
Graphics card	SolidWorks-certified card and driver http://www.solidworks.com/sw/sup-port/vide ocardtesting.html
Installation medium	USB2, broadband Internet connection
Screen resolution	1280 x 1024

The Bystronic Add-in installer will check if the .Net 6 runtime is installed. If not, the installation process will install it.

1.3 Licensing

For license information, please refer to the 'BySoft CAM What's new document'.

1.4 Compatibility

The Bystronic Add-in is compatible with BySoft CAD Designer 1.2.0 or higher and also with standalone SolidWorks version 2017 or higher.

2 What's new in Version 2.0.2

The BySoft CAD package contains three components:

- BySoft CAD Designer
- BySoft CAD Add-in for SolidWorks
- Unfolder component

The following sub-chapters contain a description of the major improvements that have been implemented in this new version.

2.1 BySoft CAD Designer

There is no new version of BySoft CAD Designer.

The last official version of the Designer is version 1.2.1.43. This version corresponds to the SolidWorks OEM 2021 SP04.1.

2.2 BySoft CAD Add-in for Solidworks

In this 2.0.2 version, the BySoft CAD Add-in for SolidWorks has been improved with the new step bend feature and other improvements and corrections.

In the following section, you will find a description of this new feature and of the major improvements and corrections.

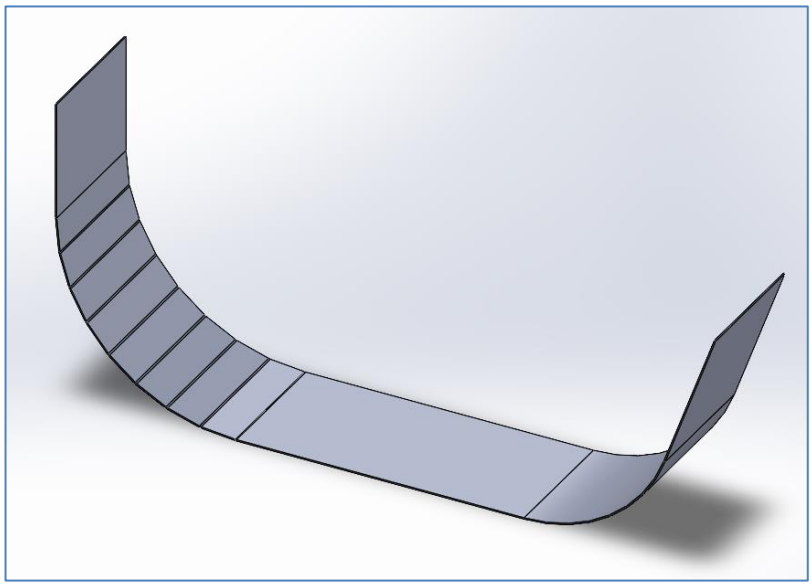
At the end of this chapter, you will find also a tutorial explaining the way to modify the k-factor value of a non-native SolidWorks sheet metal part.

As mentioned in the compatibility chapter, .Net 6 runtime must be installed in your PC. The installation process will check if the runtime is already installed. If not, the .Net 6 runtime will be installed first, before launching the installation process of the Add-in.

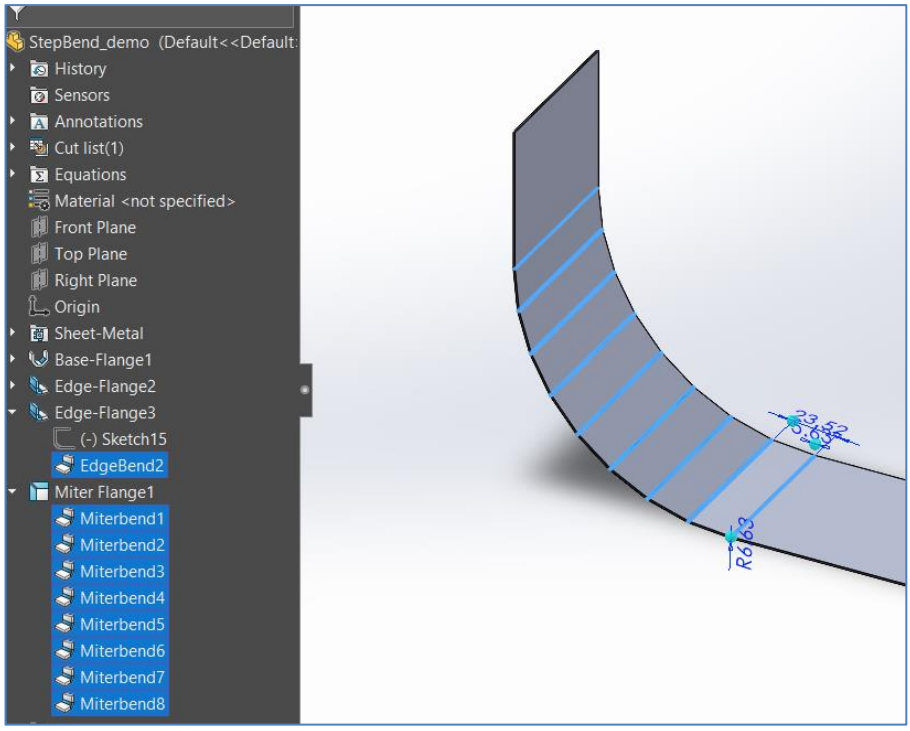
2.2.1 Step bend

2.2.1.1 Overview

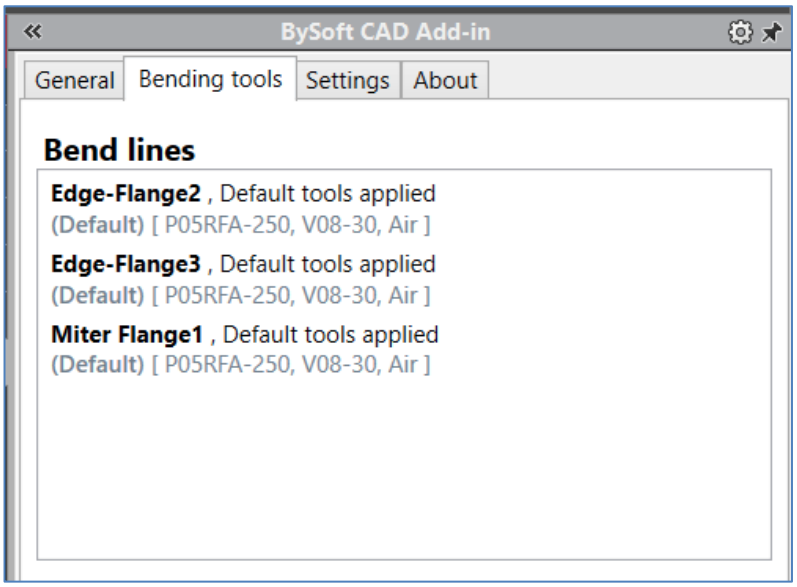
Step bend is a feature in order to use several common bends instead of a big radius bending, as shown below.



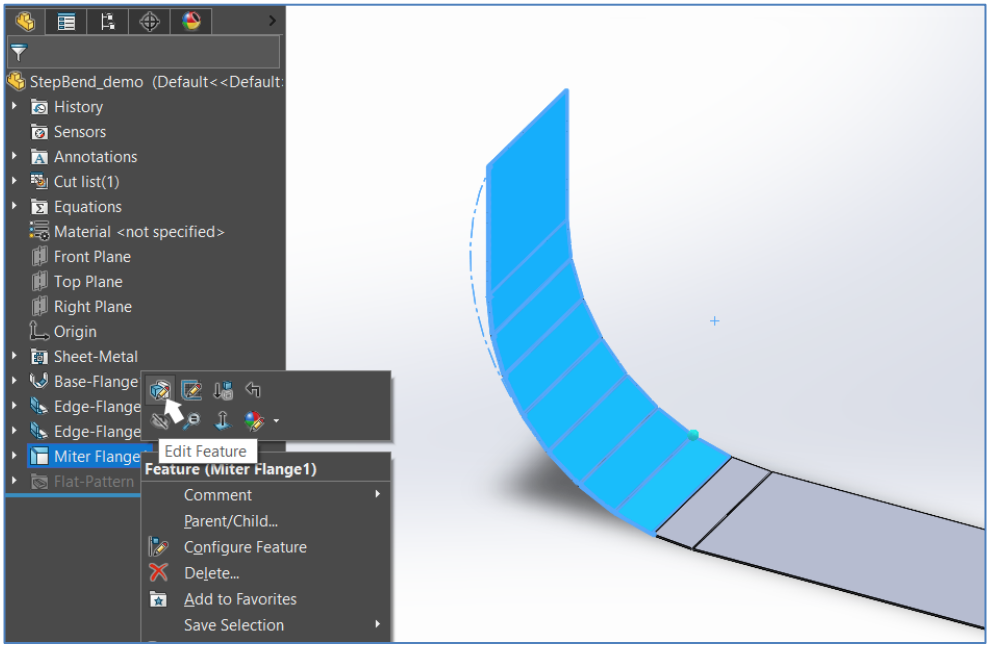
In fact, step bend is combination of two native CAD features: Edge and Miter flanges, as seen in the tree view below.



Custom bending tools can be applied to a step bend in the same way as any common bend feature, through the 'Bending tools' tab of the 'BySoft CAD Add-in' form:

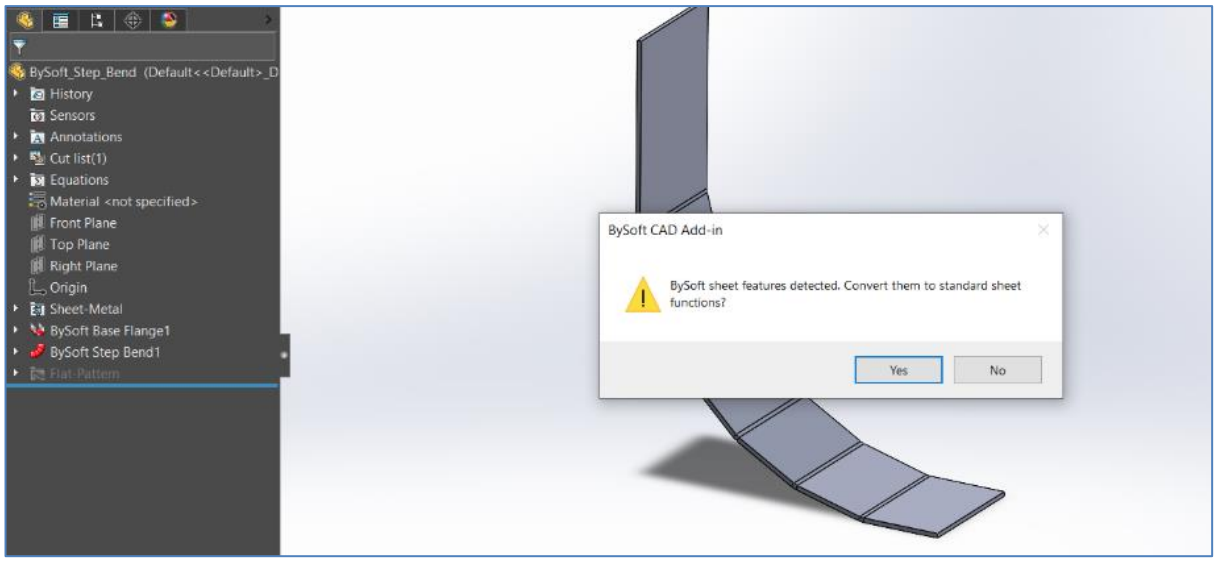


Editing or deleting a step bend can be done through the Features Tree by manipulating of CAD features, as shown below.



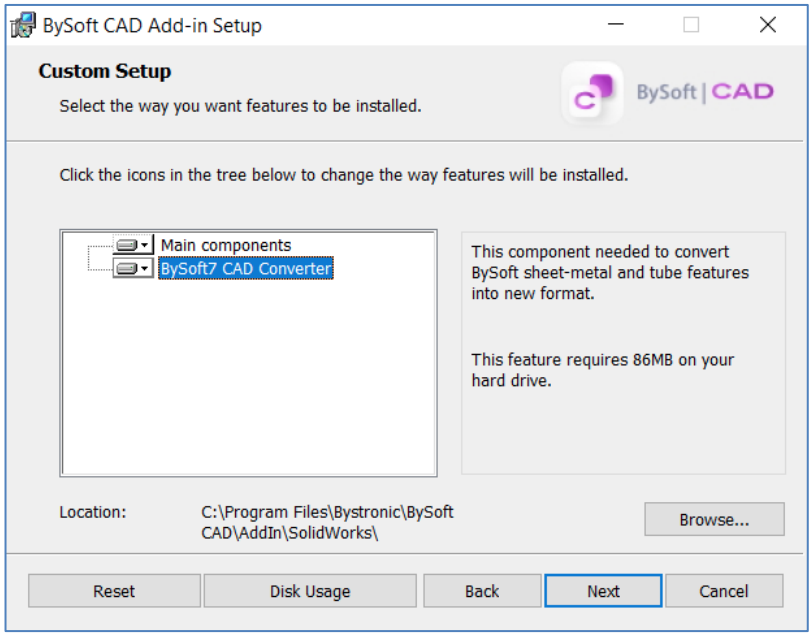
2.2.1.2 Compatibility

If a part with a step bend feature is defined with the old BySoft7 Designer Add-in 8.8, a conversion will be proposed, as shown below.



Note: In order for the conversion functionality to work, for the application to read old part data, the 'BySoft7 CAD Converter' component should be enabled during the installation of the BySoft CAD Add-in, as shown below.

The 'BySoft7 CAD Converter' component is installed by default.

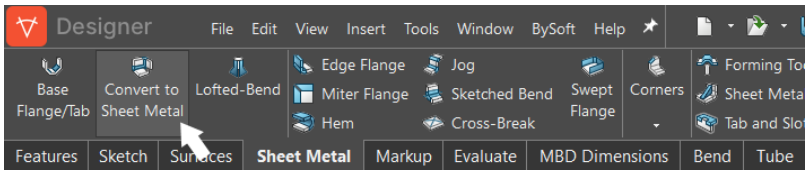


However, the conversion is not a must, and it is possible to proceed with the original part as it is.

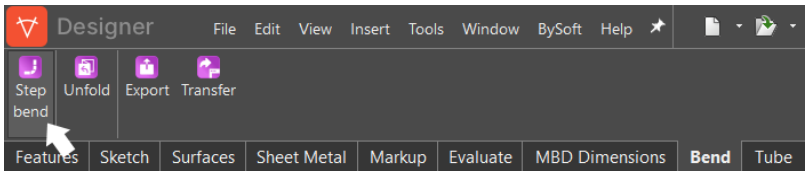
2.2.1.3 Tutorial

To create a step bend with the BySoft CAD Add-in for SolidWorks, a sheet-metal part must be created or an existing one must be opened.

If the part is an imported body, created from an '*.stp', '*.ipt', '*.sat' or other imported file, it should be converted to sheet-metal format by using of the 'Convert to Sheet Metal' defined under the 'Sheet Metal' tab, as in the following picture.

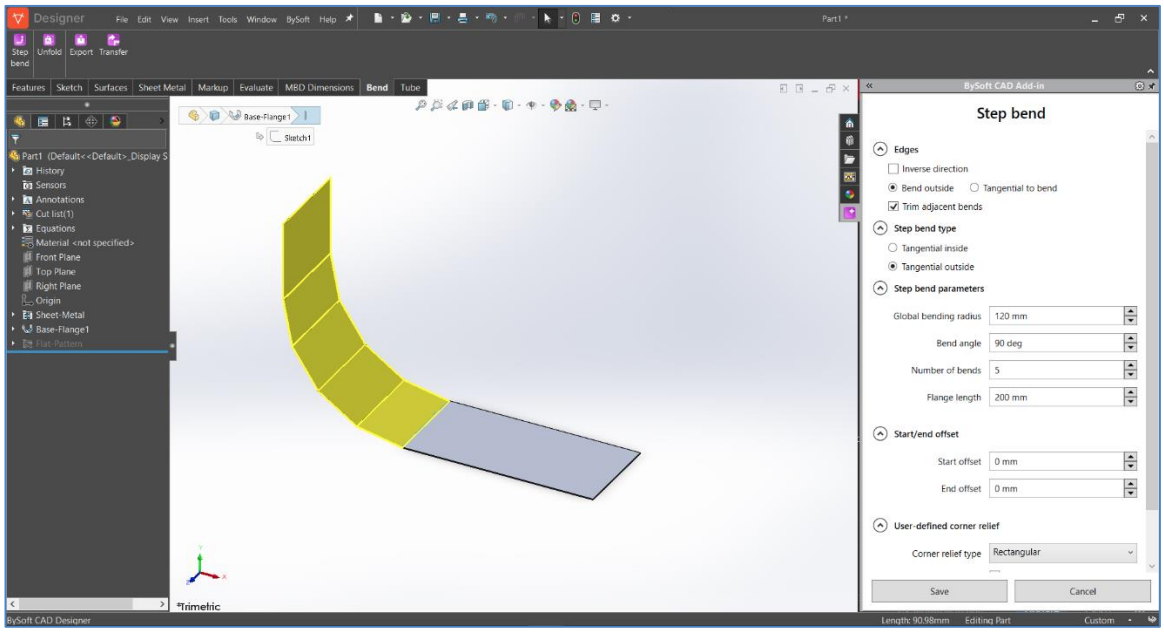


As soon as you are in a sheet-metal part, press the 'Step bend' command from the 'Bend' tab in order to create a step bend:

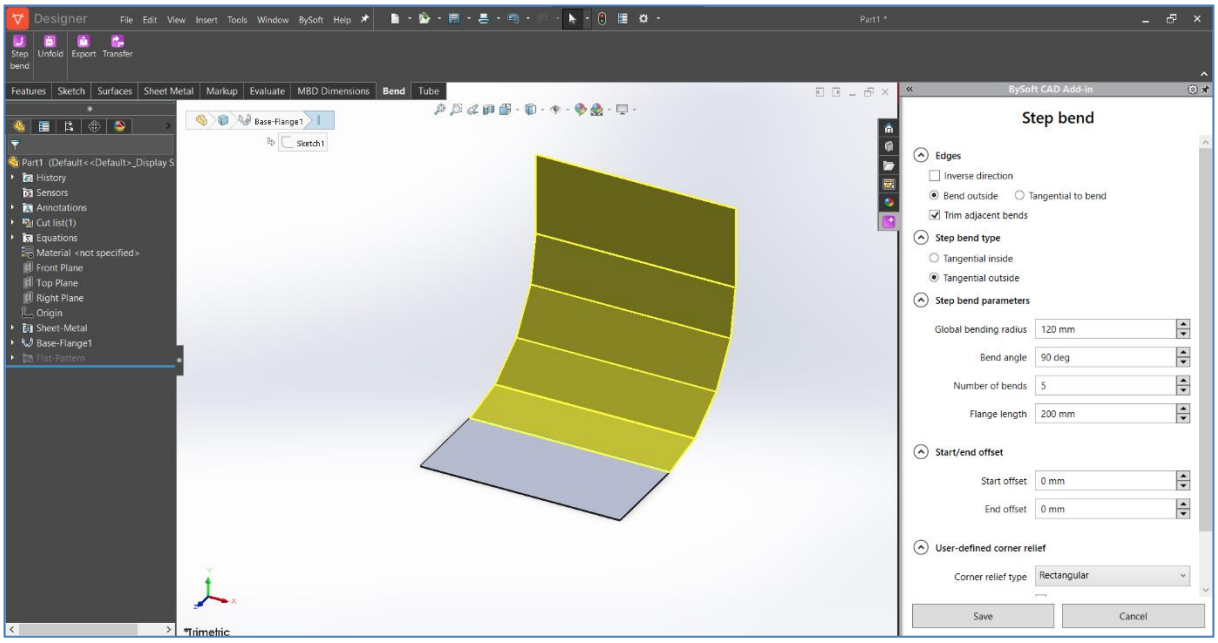


In the next step, you must select an edge of the part, to get a preview of your step bend.

An edge may be selected before or after starting to define the step bend parameter into the 'Step bend' window, as showed in the following picture.

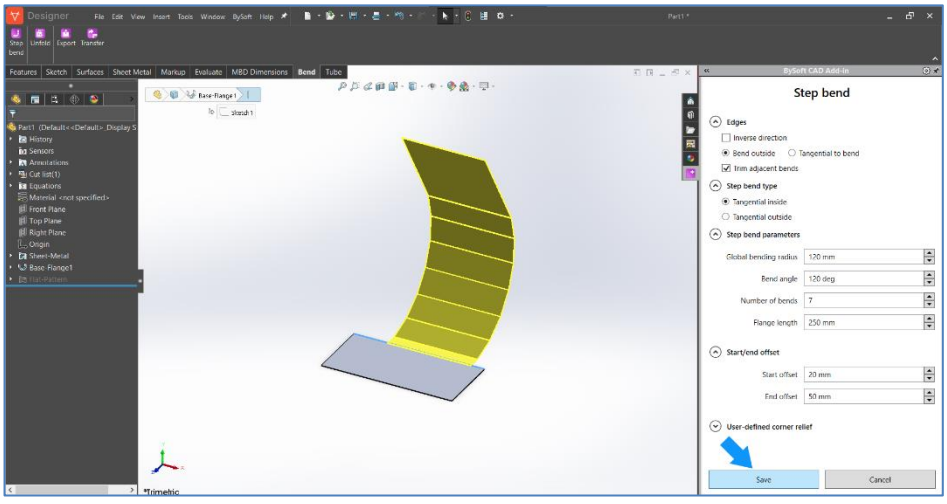


By selecting another edge, the preview will be updated using the already defined step bend parameters.



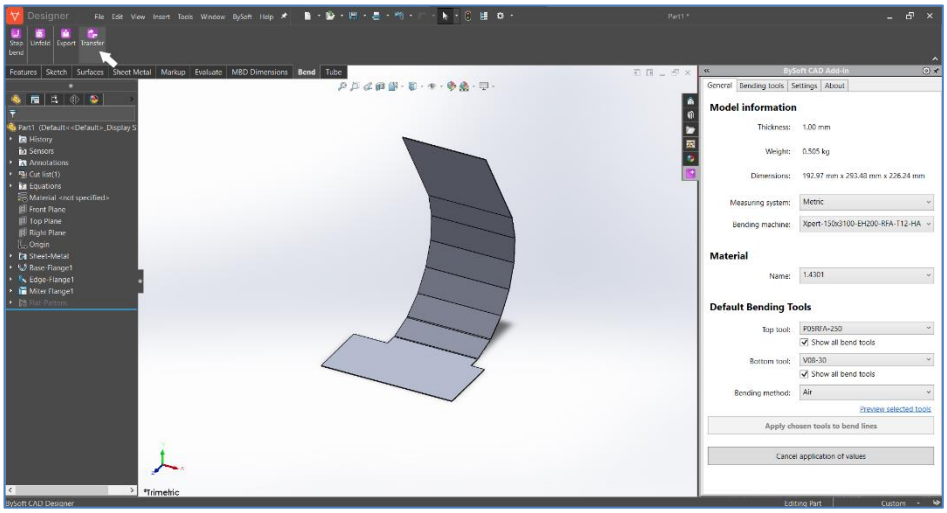
If an option or a value are modified, the preview will be updated according to the new specified parameters.

When the preview of the step bend is achieved as desired, then click on the 'Save' button to create the features, as highlighted in the picture below.



Press 'Cancel' if you don't want to apply the defined step bend on your part.

The created part can be transferred to the BySoft CAM application as usual, by clicking on the 'Transfer' command in the 'Bend' toolbar, as shown below.



2.2.2 Improvements and corrections

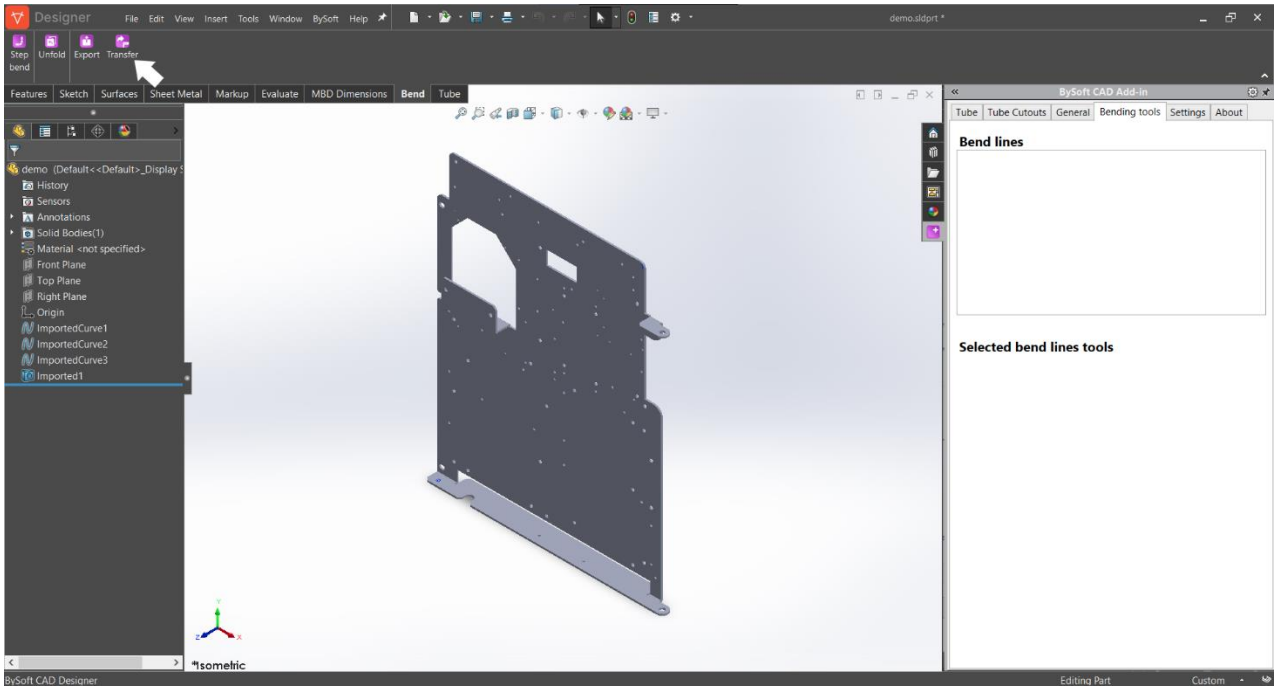
In addition to the new feature, other improvements have been made to the BySoft CAD Add-in for SolidWorks. The major corrections are listed below.

- Issue related to the transfer of the active sheet of the drawing document has been solved.
- Passing bend line information from DXF files over the Add-in has been fixed, so that all existing lines are transfered back from the Add-in to the BySoft CAM application.
- In some cases, the k-factor was not correctly transferred. This has been corrected and the k-factor is now correctly transferred.
- In using the Imperial measurement system, the thickness is now displayed with the correct number of decimal values.
- Compatibility with the standalone SolidWorks application has been improved and startup time has been reduced.
- The installer has been improved in removing redundant dialogs.
- The stability of the Add-in has been improved.

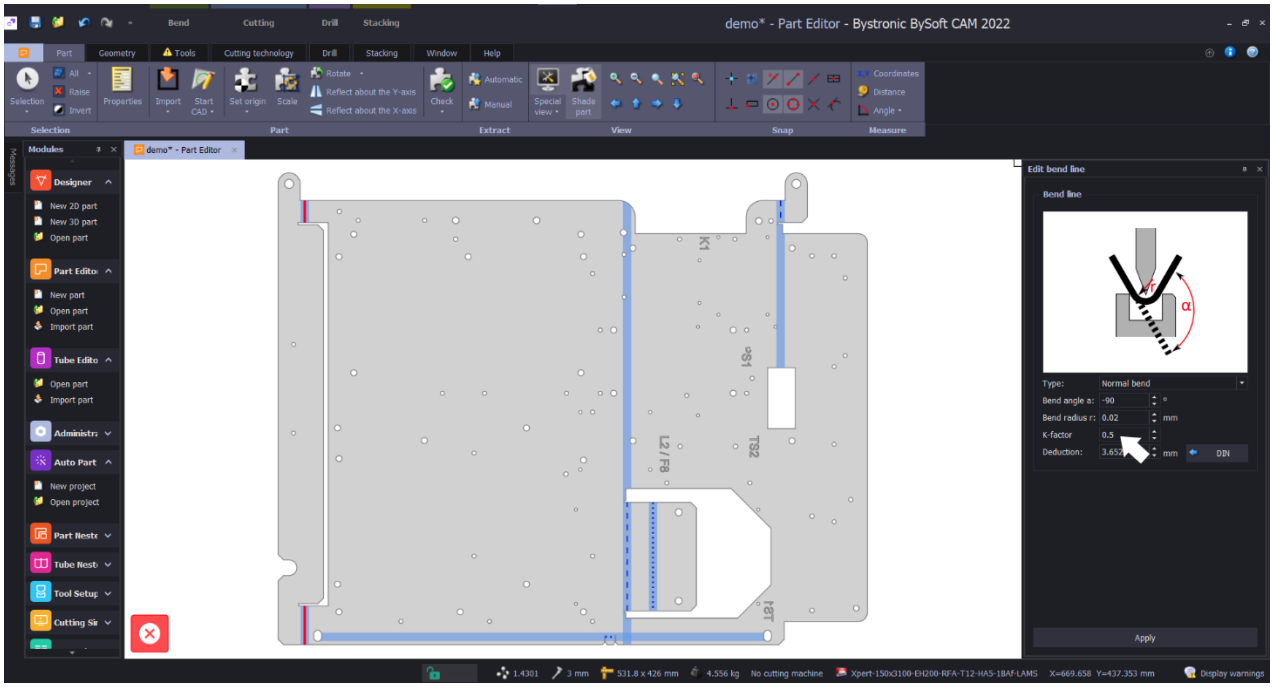
2.2.3 Tutorial – How to change k-factor on non-native 'sheet metal' part

This chapter explains how to change the k-factor on a non-native SolidWorks part.

Once a '.psm', '.ipt', '.step' or other bend part format file is imported into BySoft CAD Designer, it can be transferred to the BySoft CAM application as is, right after opening the file, using the 'Transfer' command available in the 'Bend' tab, as shown below.

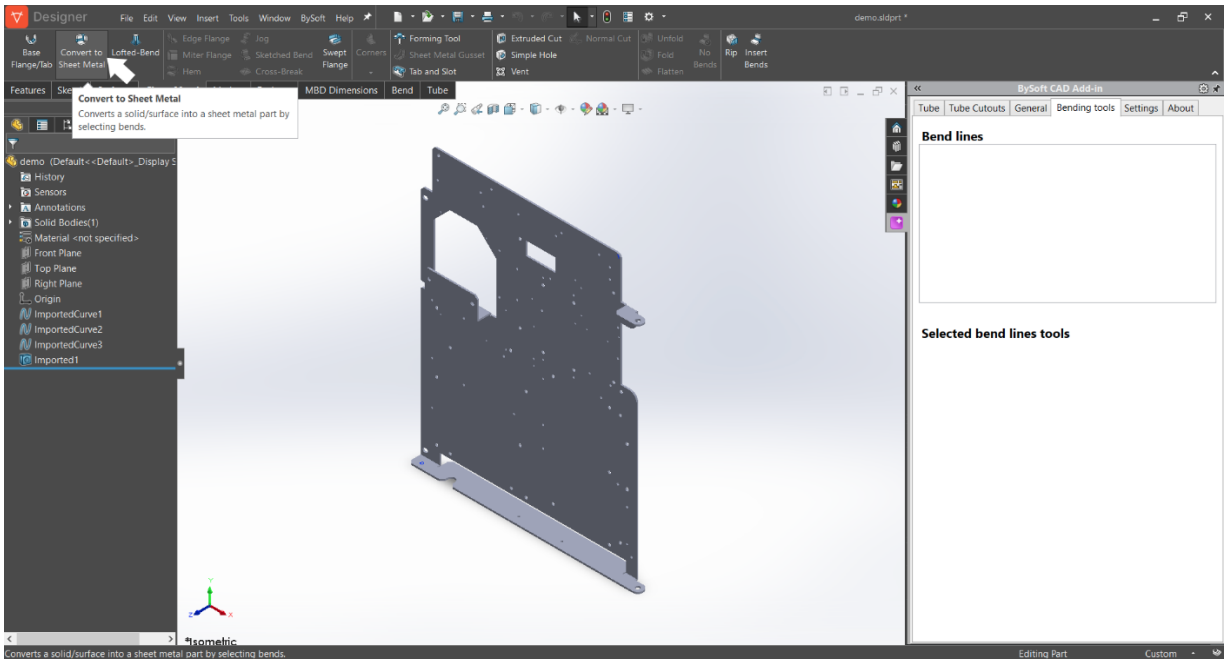


However, in this way all bend lines are transferred with the default k-factor value, as shown below.

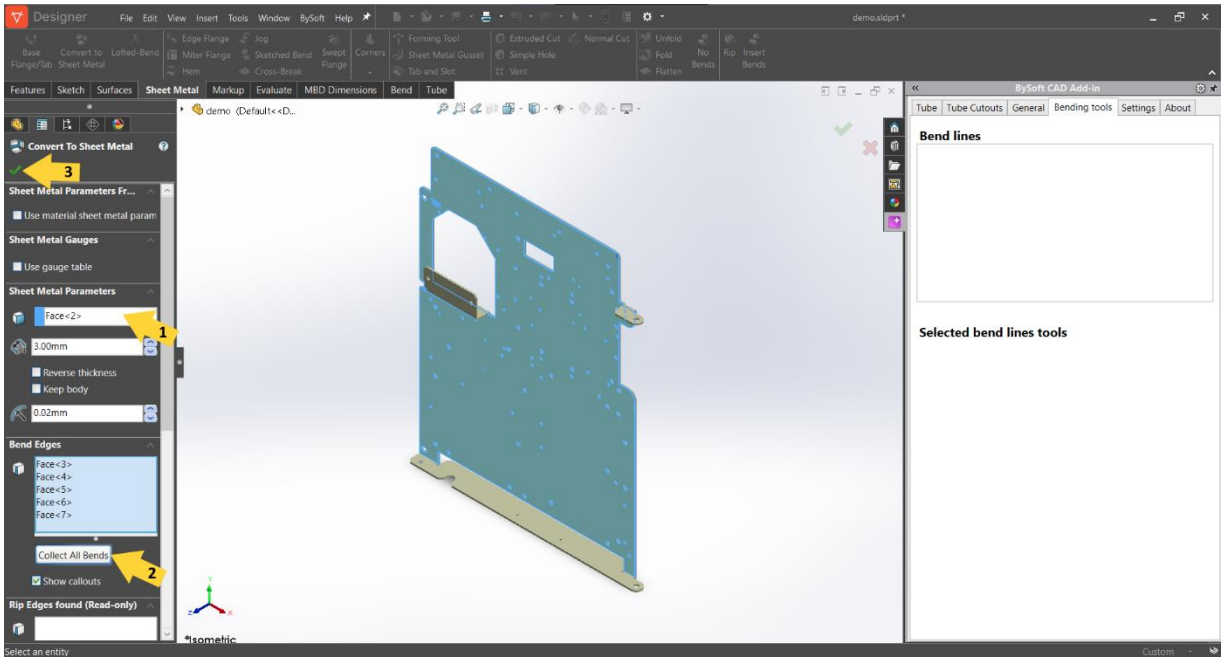


To modify the k-factor with a desired value for all bend lines or separately for each line, the imported geometry first needs to be converted to sheet-metal format.

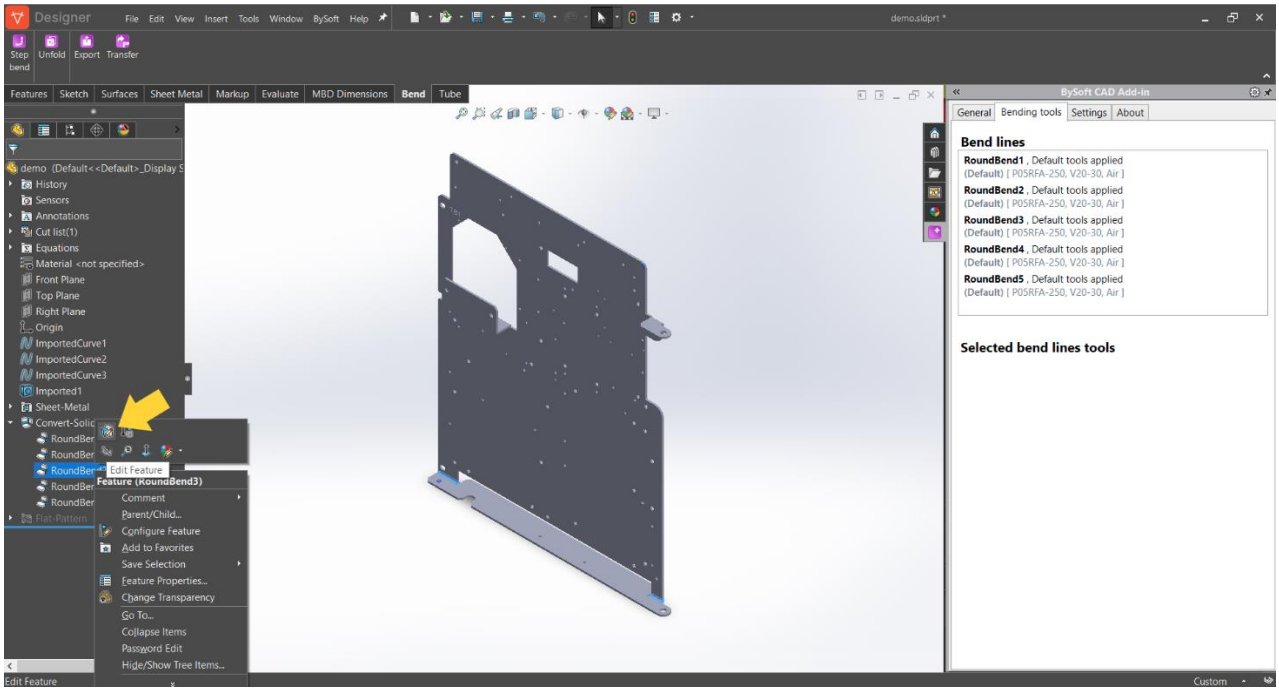
In the 'Sheet Metal' tab on the top bar, click on the 'Convert to Sheet Metal' command.



Then, select a fixed entity (1), e.g. a face with the largest area, click 'Collect All Bends' (2), complete with the green check button (3):



following the conversion, the BySoft CAD Add-in will detect the bend line features and the desired k-factor can be manually defined in SolidWorks feature or by selecting bend tools in the Add-in, as shown below.



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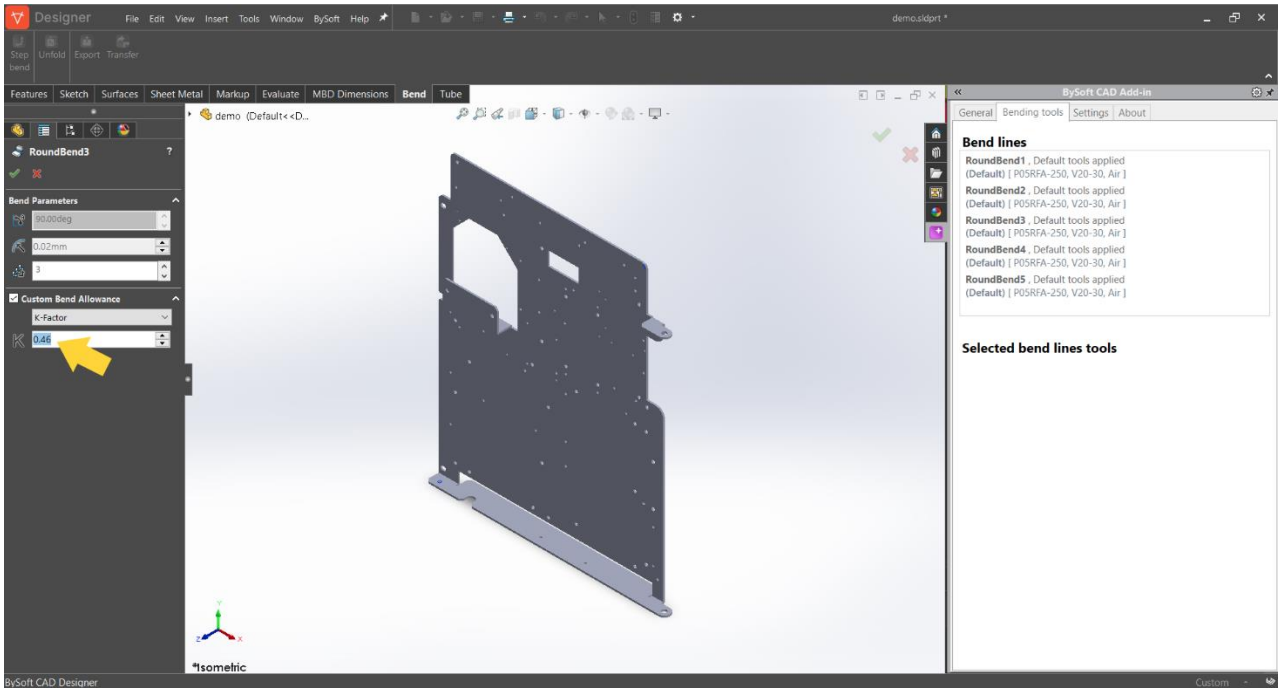
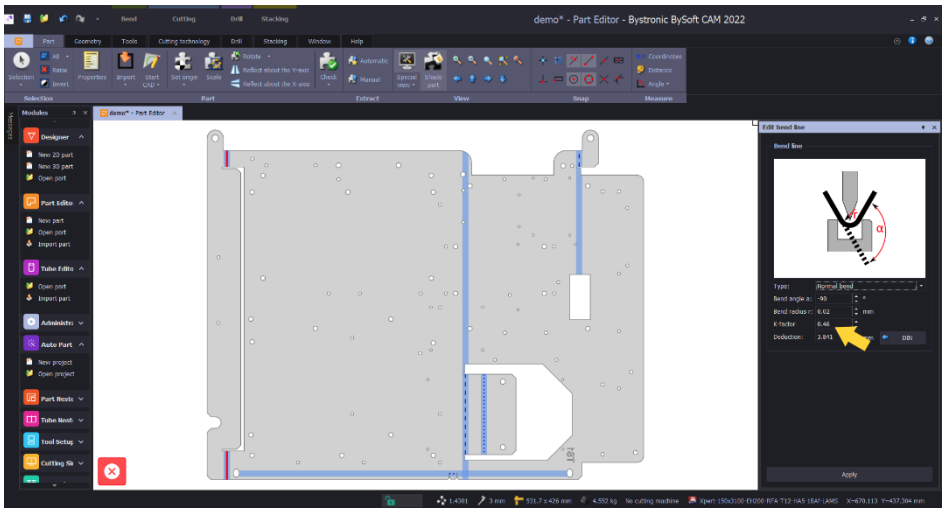


Now, you could transfer the part to BySoft CAM Programmer. It will contain all specified k-factor values, as showed in the following picture.



2.3 Unfolder component

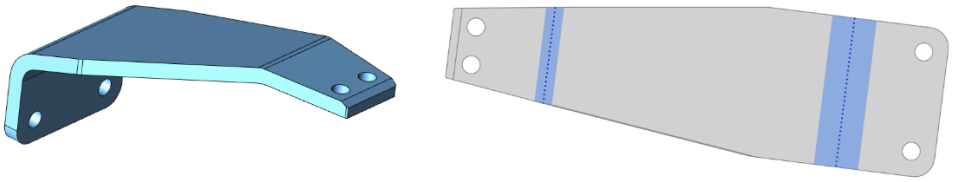
The unfolder component transforms the 3D part into a flat 2D part and is integrated into the Add-in for SolidWorks, into the PartEditor importer, into the TubeEditor importer and into the Autopart application of BySoft CAM.

2.3.1 New implemented feature

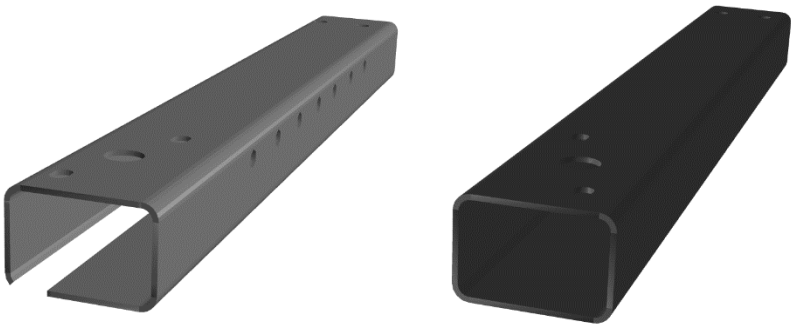
A method has been implemented in order to identify that a STEP file contains only a single part. This method is used in the BySoft CAM Part Importer and Autopart.

2.3.2 Main improvements

The algorithm responsible for bevel dectection has been improved. A sample part where the bevels are now correctly detected is shown below.



The height of unfolded tube parts is now correctly detected and defined.



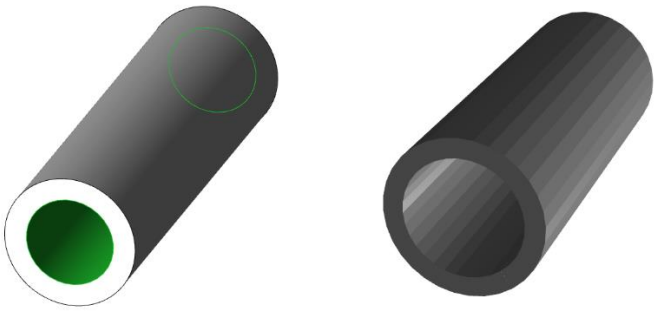
Before correction

After correction

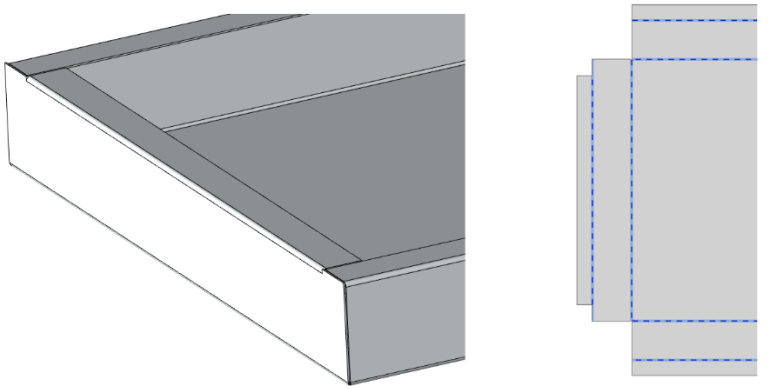
Improvements have been implemented in detecting engraved contours, as shown below.

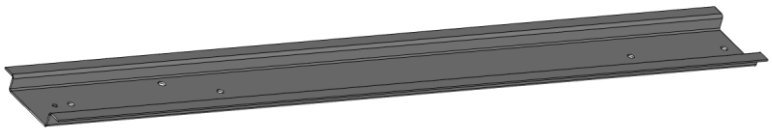
BySoft CAD

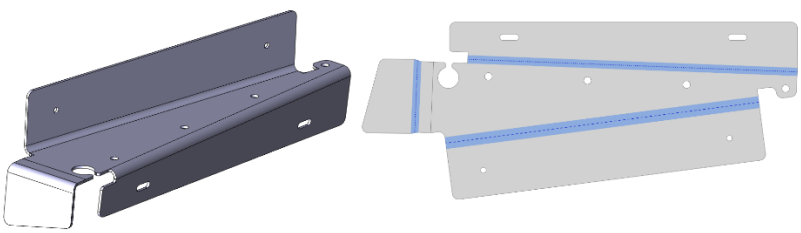
Unfolding issues on a circular tube with enclosed faces have been corrected.



The bend line detection algorithm has been improved and several issues have been solved. You will find some samples in the following pictures.







2.3.3 Other improvements and corrections

- For format compatibility, a GUID is always provided in the part info meta data of a DXF file.
- Issues regarding detection of the thickness of the part have been solved.
- The performances of the unfolding algorithms have been improved.
- Several issues found in the unfolding algorithms have been solved.

3 What's new in Version 2.0.0

The BySoft CAD package contains three components:

- BySoft CAD Designer
- BySoft CAD Add-in for SolidWorks
- Unfolder component

The following sub-chapters contain a description of the major improvements that have been implemented in this new version.

3.1 BySoft CAD Designer

There is no new version of BySoft CAD Designer.

The last official version of the Designer is version 1.2.1.43. This version corresponds to the SolidWorks OEM 2021 SP04.1.

3.2 BySoft CAD Add-in for Solidworks

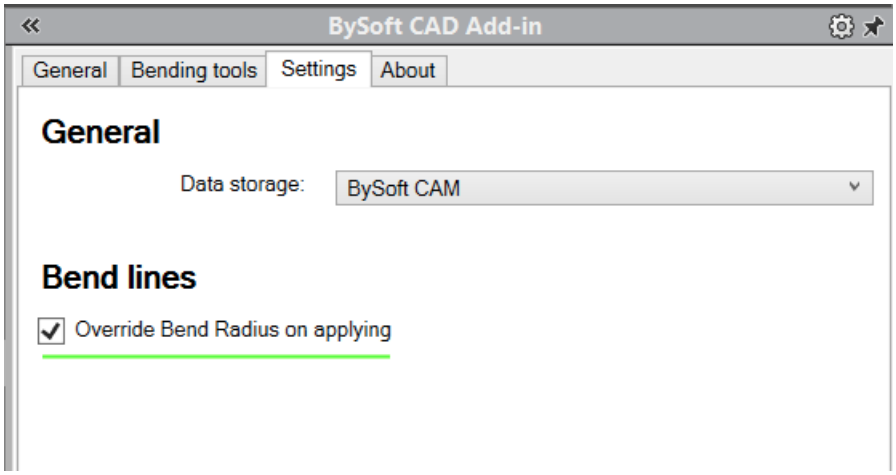
In this 2.0.0 version, the BySoft CAD Add-in for SolidWorks has been improved with new features and corrections.

This chapter contains a description of the main improvements and corrections.

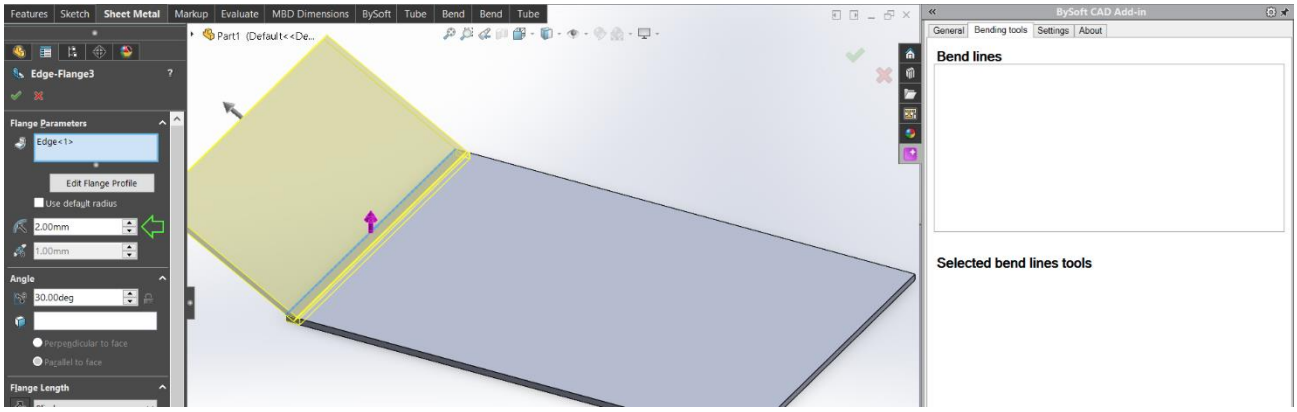
The last part of this chapter includes the installation instructions.

3.2.1 Applying tools for new bend lines

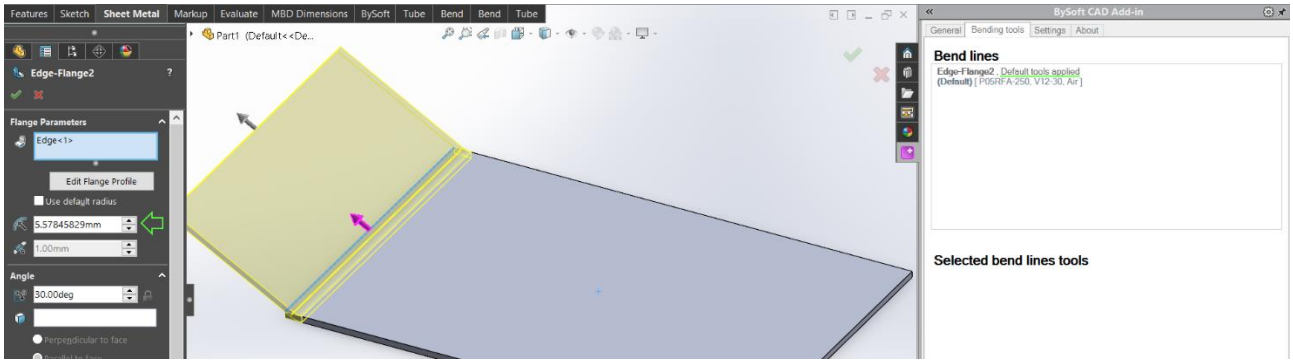
If the 'Override bend radius on applying' option is enabled in the 'Settings' tab, as shown in the following image,



then if a new bend line is created in a bend part, e.g. an Edge Flange,



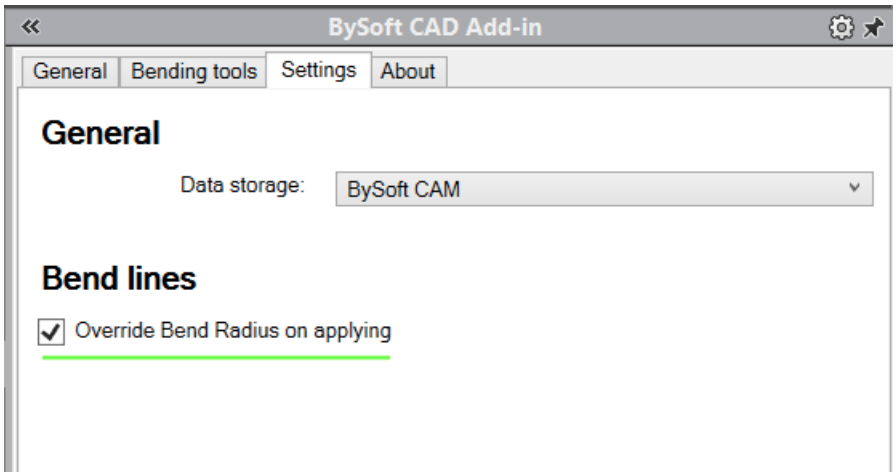
the selected default tools – and their associated bend radius – will automatically be applied to it, as shown in the following image.



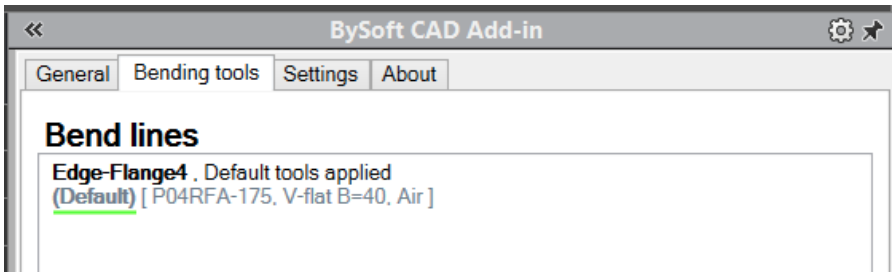
Note that if the 'Override bend radius on applying' option is unchecked, tools do not have to be manually defined for each bend line in the list. Tools should only be manually defined for a line if it is necessary to apply different tools to a line than the selected default tools.

3.2.2 Source of applied bending tools

Depending on the state of the 'Override bend radius on applying' option under the 'Settings' tab of the 'BySoft CAD Add-in' sidebar, enabled by default,



and depending on whether a bend line uses the default bending tools or has differently assigned tools,

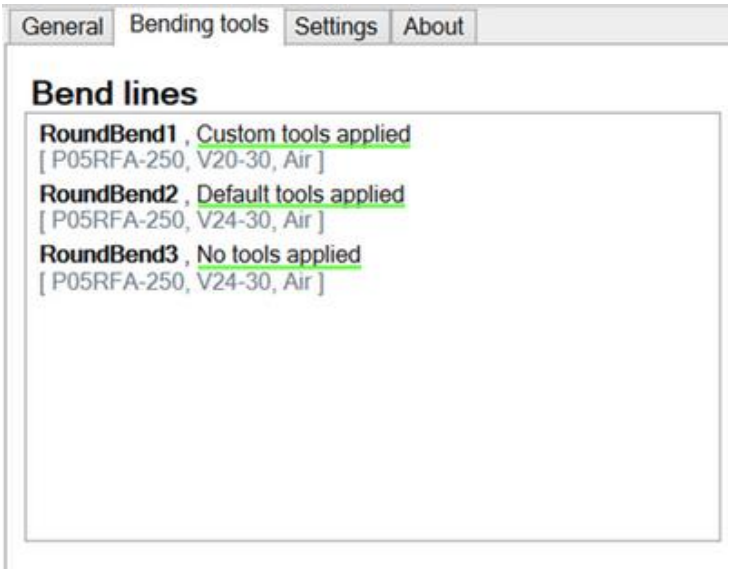


the source of the bending tools applied to a bend line can have one of various possible values:

Input factors	Output label	Meaning
Default tools used, 'Override bend radius on applying' enabled, and tools applied to bend line	'Default tools applied'	Bend line geometry changed and bend radius recalculated properly to selected tools
Default tools used, 'Override bend radius on applying' disabled, and tools applied to bend line	'No tools applied'	Bend line geometry not changed and bend radius used as defined in the part

Different tools from default applied to bend line	'Custom tools applied'	Bend line geometry changed and bend radius recalculated properly to selected tools

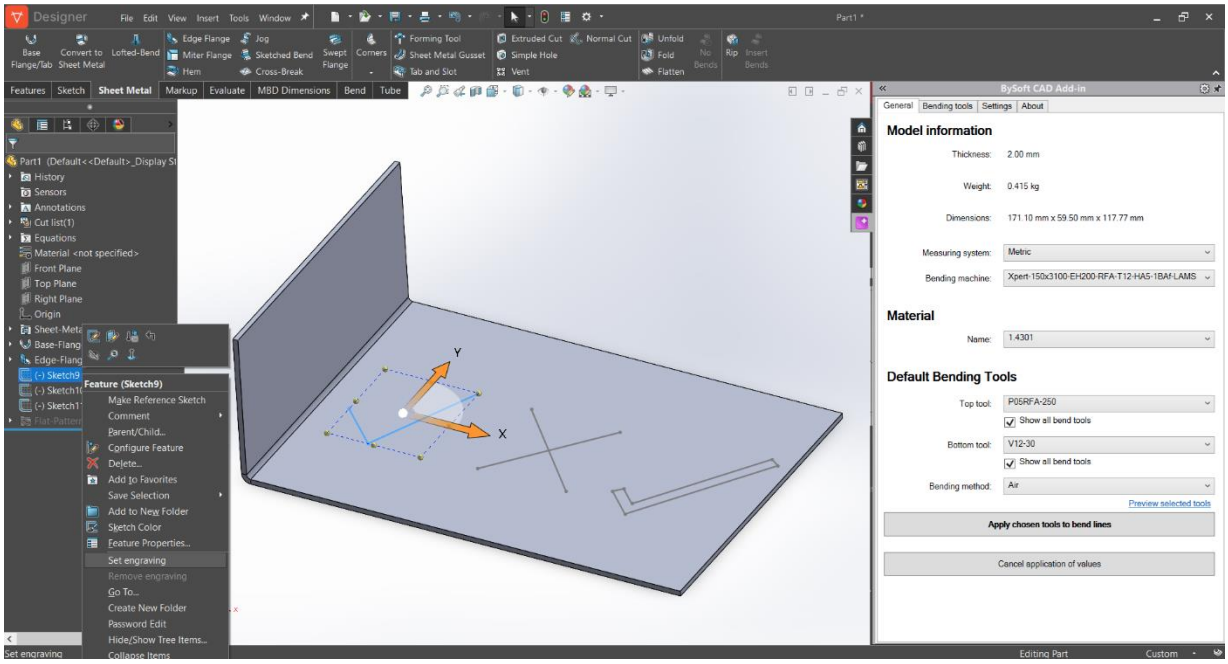
The source of applied bend tools is shown for each item in the bend lines list, as shown in the following image.



3.2.3 Engraving sketches

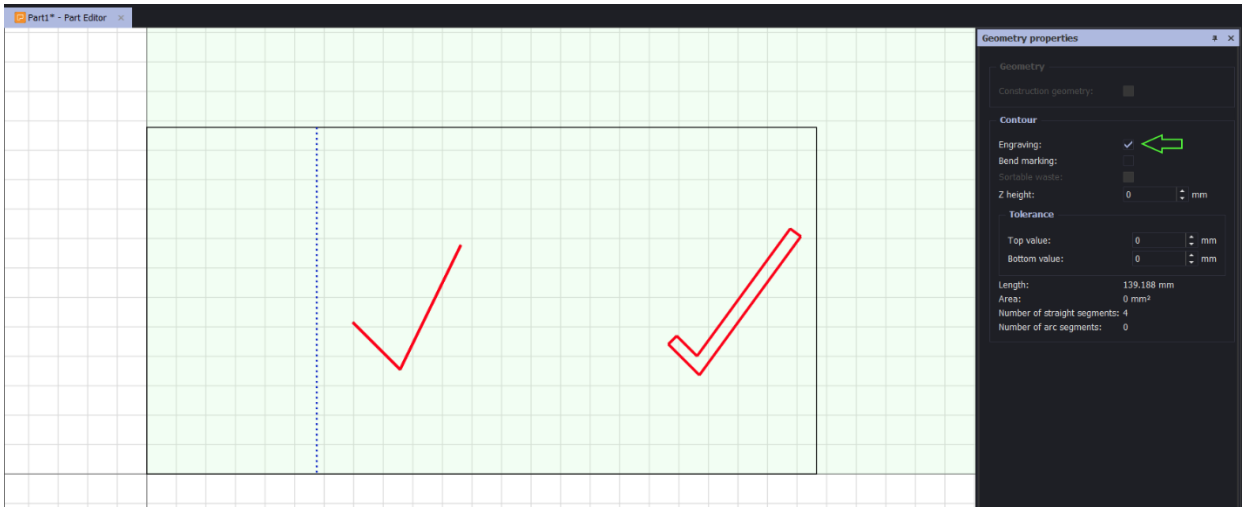
If 2D sketches are defined in the bend part, any of them can be marked to be an engraving contour.

To mark a 2D sketch as an engraving, go to the sketch in the Design Tree, then right-click and select the 'Set engraving' item from the context menu, as shown in the image below:



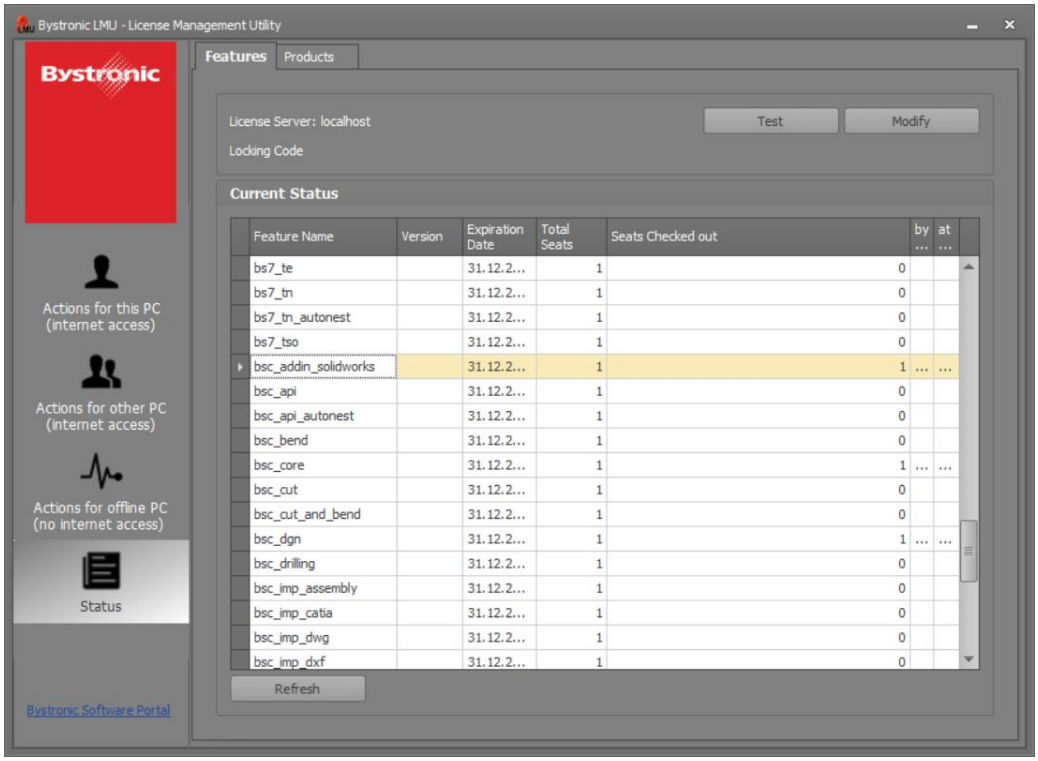
Both closed and unclosed sketches are supported.

After transferring a part to BySoft CAM Programmer, the 2D sketches marked as engravings will be automatically added as engraving contours, as shown in the image below.

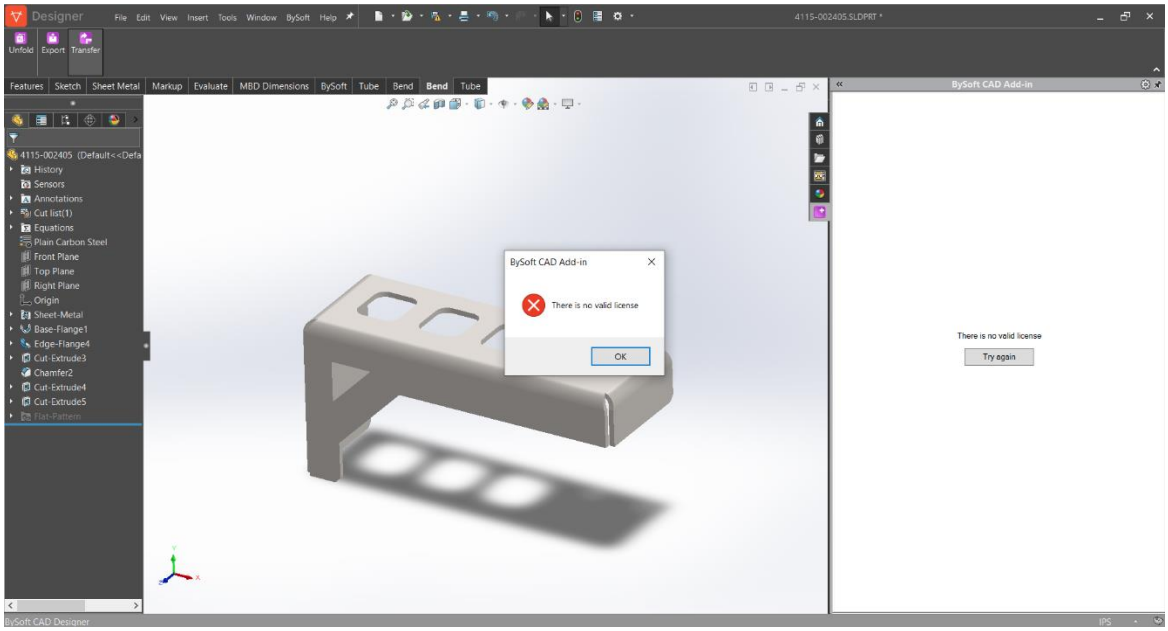


3.2.4 License protection

Add-in execution is protected by the BySoft CAM license feature. Please check that the 'bsc_addin_solidworks' feature is available in your Bystronic License Manager Utility:



If the license feature is not available in the Add-in sidebar, then clicking on the Add-in buttons in the top bar will display the following error message:



3.2.5 Other improvements and corrections

In addition to the features described in the precedent chapters, the following improvements and corrections have been introduced into this new version:

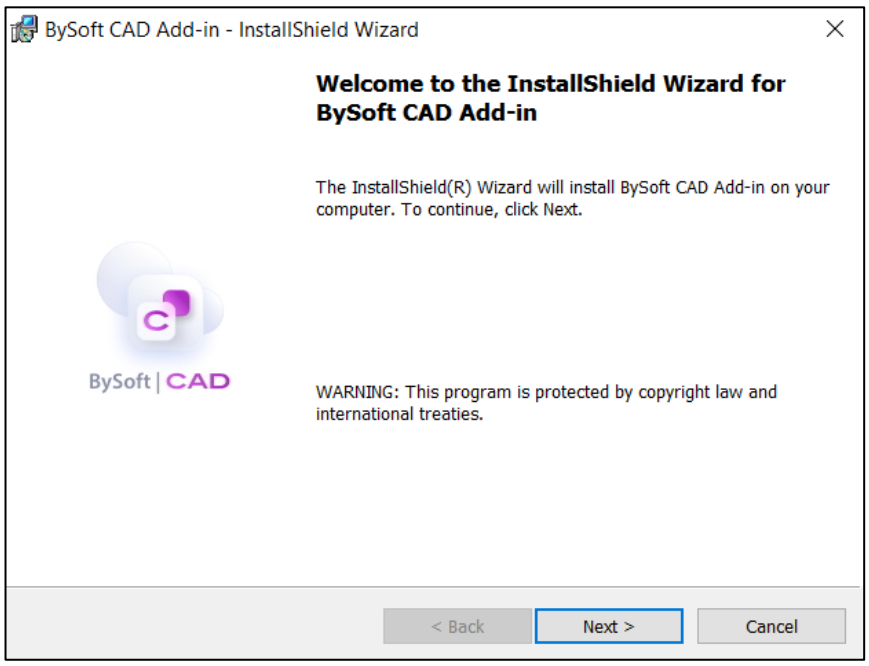
- When opening a DXF file, the unique part identification information is now read. Therefore, when transferring this modified part from Designer to the BySoft CAM Part Editor, the existing part will be updated with the new geometry. In the preceding version, a new part was defined in the Part Editor.
- In some cases, the part thickness was not transferred to the BySoft CAM application. This is now solved and the thickness is transferred correctly.
- Resolved issues in order to correctly transfer bend line information data to BySoft CAM when importing geometric parts, e.g. STEP files.
- The layout of the 'BySoft CAD Add-in' sidebar has been improved in order to fit content on a smaller screen.
- The 'BySoft CAD Add-in' sidebar is now correctly updated when closing a part or switching from one part to another part.
- The tube recognition has been improved.
- In case of unhandled errors, a dialog box now displays detailed information.
- The application crashing when using the 'Convert to Sheet Metal' feature has been resolved.

3.2.6 Installation

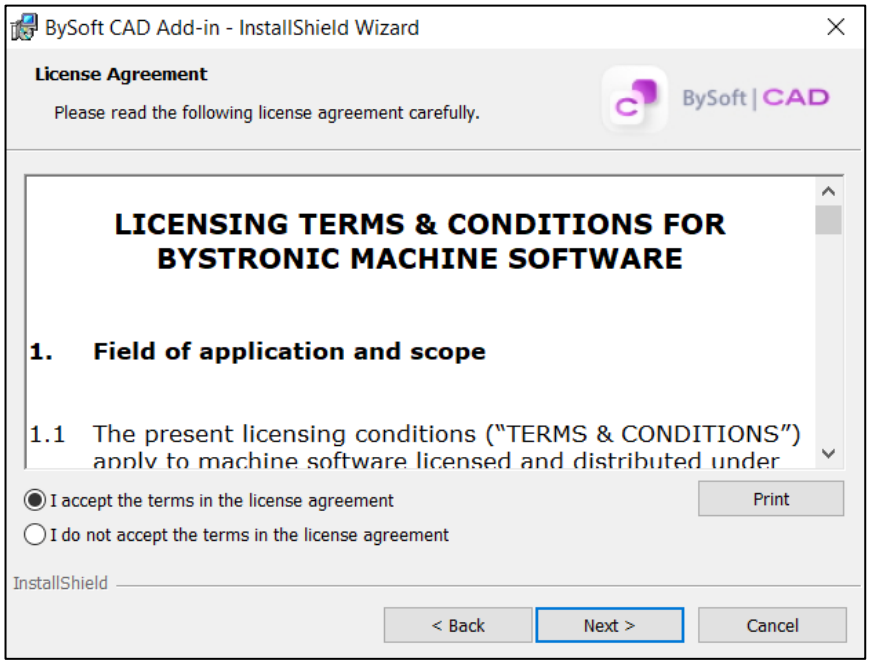
Before installing this new version, we recommend first uninstalling the preceding version of the BySoft CAD Add-in, by accessing Windows 'Settings' => 'Apps' => 'BySoft CAD Designer' => 'Uninstall', then following the uninstallation wizard instructions.

When done, please download and start the BySoft CAD Add-in.exe installer and follow the steps described below:

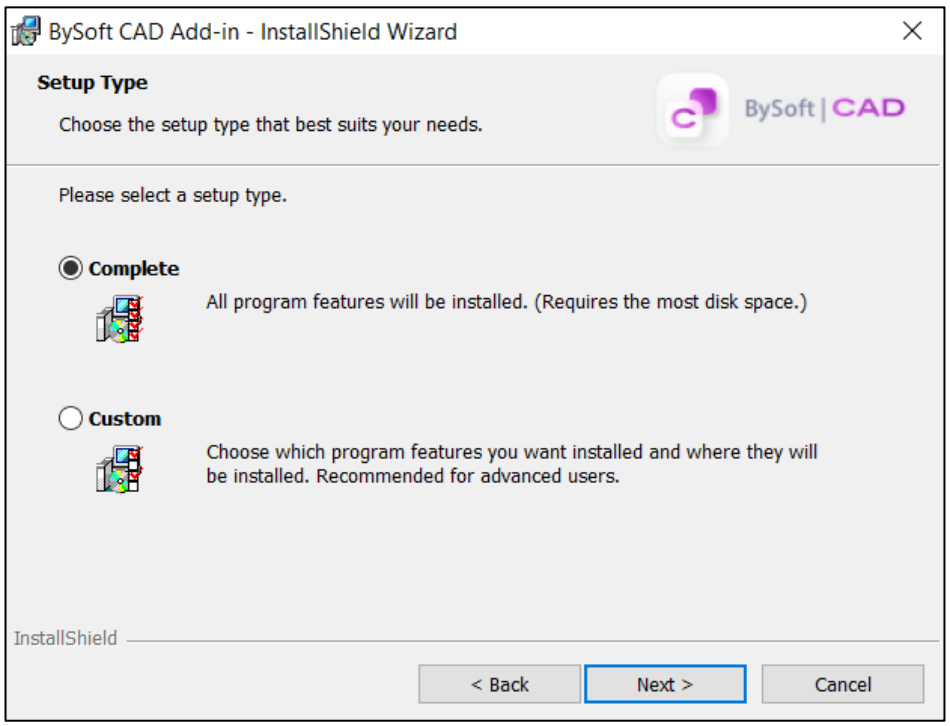
BySoft CAD



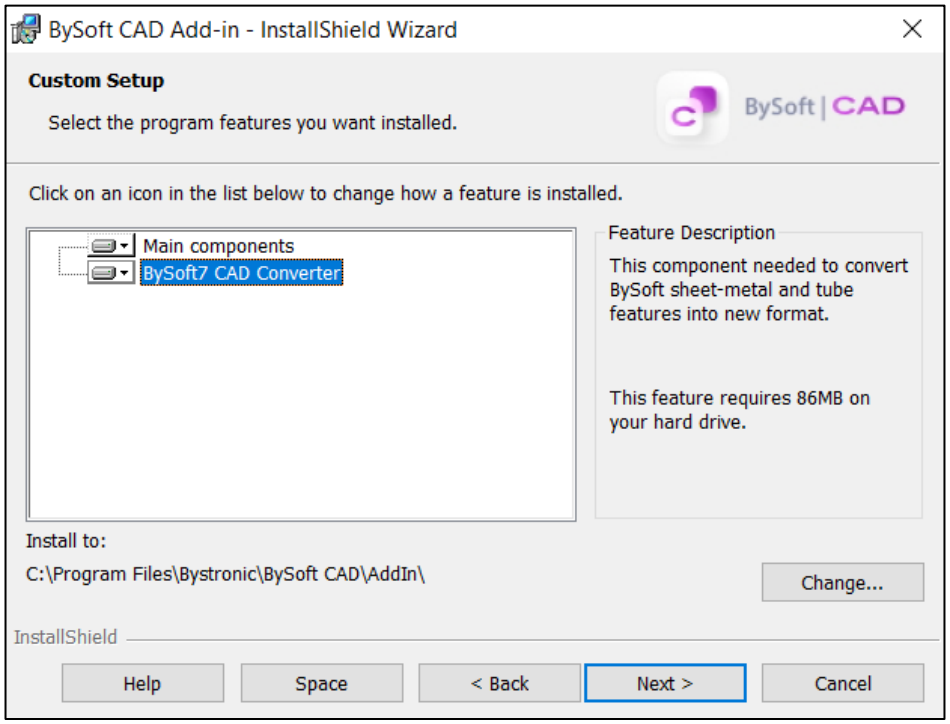
Click 'Next'.



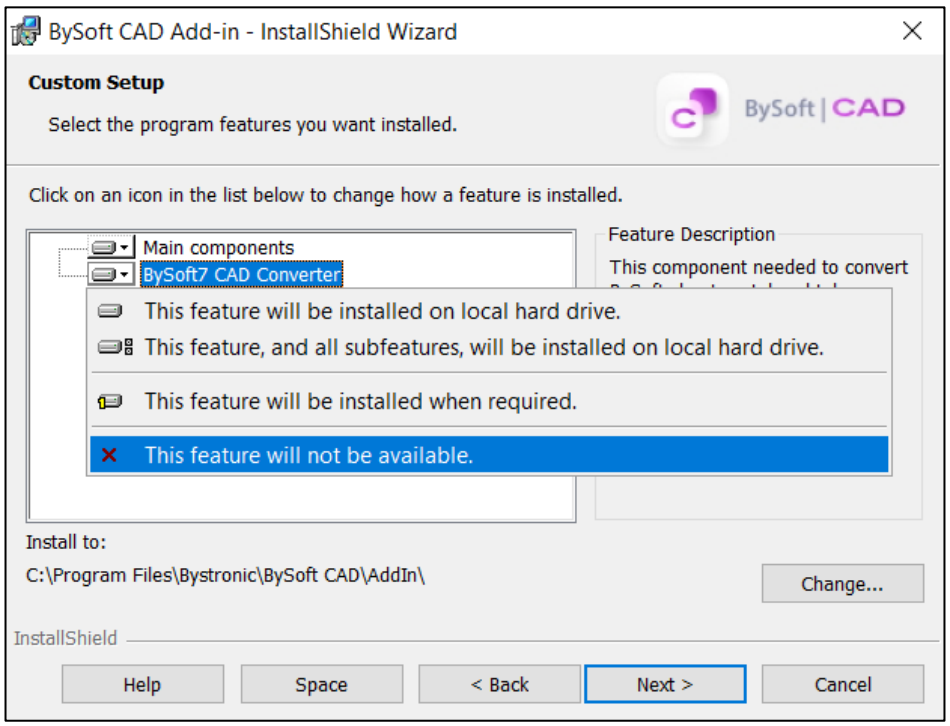
Accept the license agreement and click 'Next'.



Select a setup type and click 'Next'.



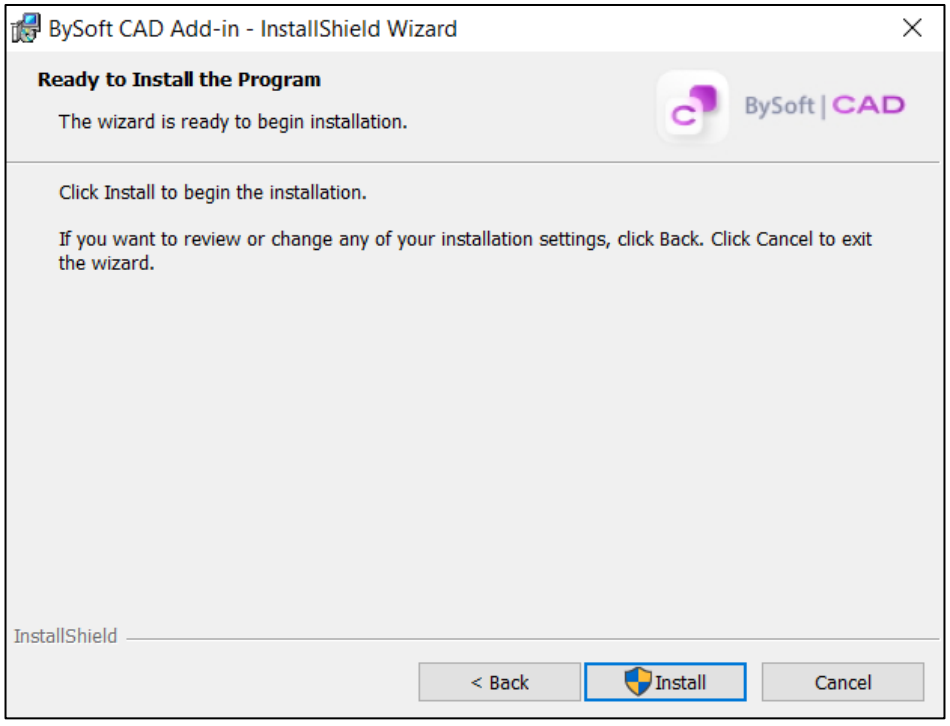
If Custom Setup type was chosen, the installation folder can be changed and the features to install can be enabled\disabled.



'BySoft7 CAD Converter' is the feature required for converting Bend or Tube parts created in the old BySoft7 Designer Add-in to the new format used in the BySoft CAD Add-in.

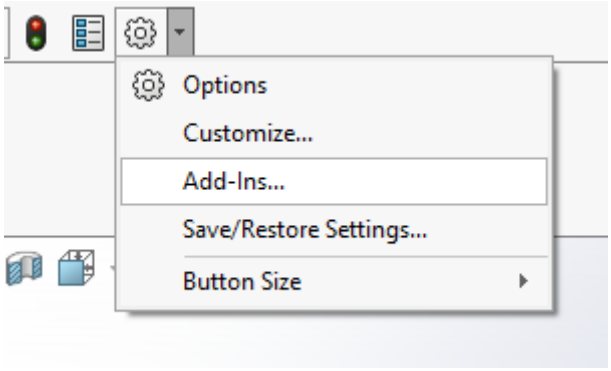
If conversion of old parts is not requirerd, this feature can be excluded from the installation by clicking the relevant icon in the features list.

Click 'Next' to proceed.



Click on the 'Install' button and wait until the Add-in is installed.

To check that the installation was successful, open Designer and go to the Add-Ins list:



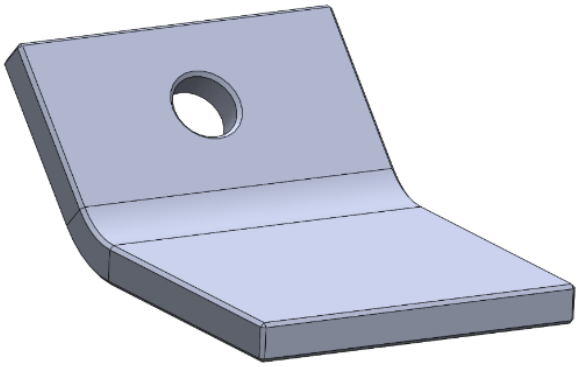
The 'BySoft CAD Add-in' should be visible.

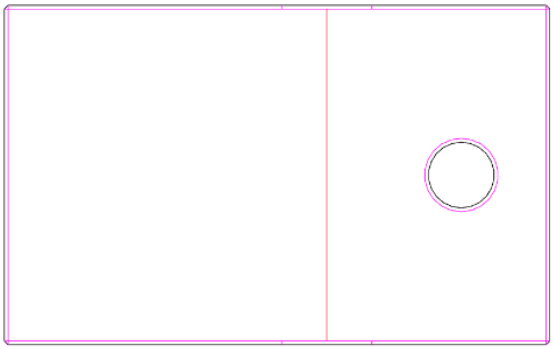
3.3 Unfolder component

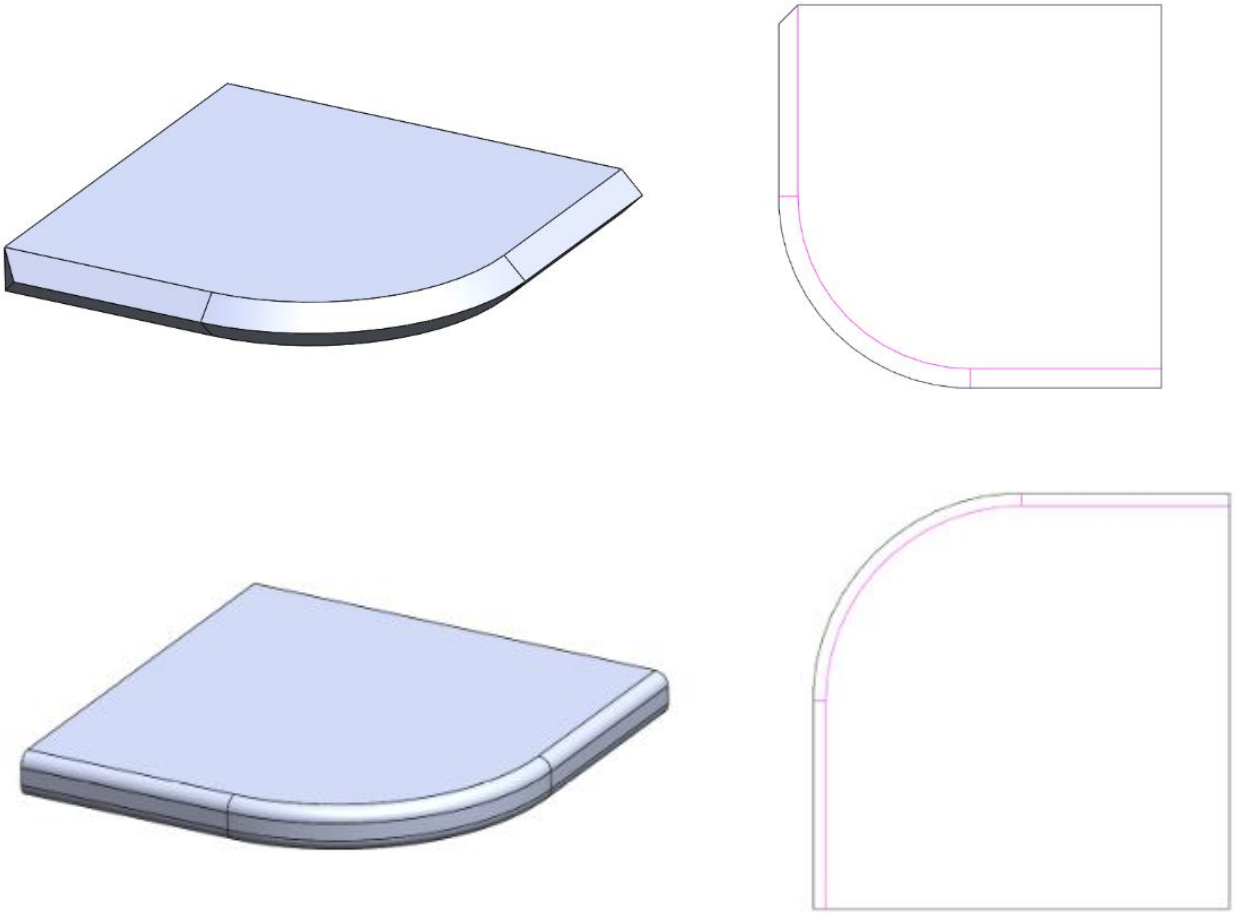
The unfolder component transforms the 3D part into a flat 2D part and is integrated into the Add-in for SolidWorks, into the PartEditor importer, into the TubeEditor importer and into the Autopart application of BySoft CAM.

3.3.1 New implemented feature

Two-sided bevels are now recognized as auxiliary contours. Some examples of 3D parts having bevels on both sides and the resulting 2D parts with auxiliary contours are shown below.

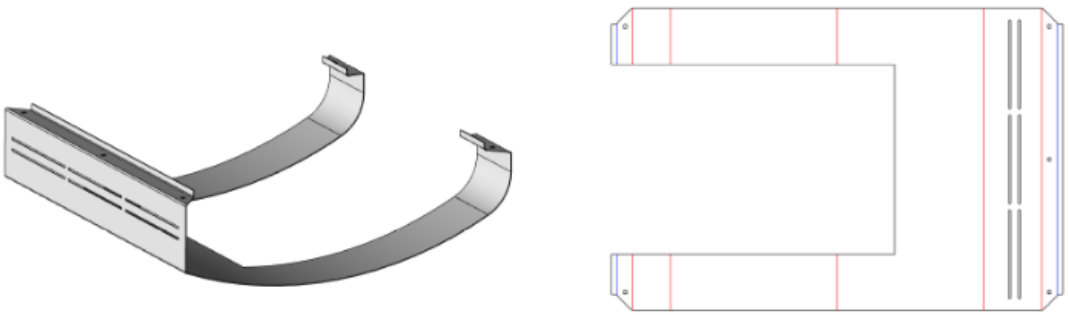


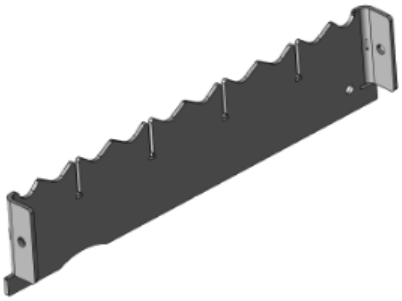


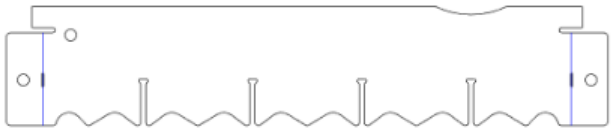


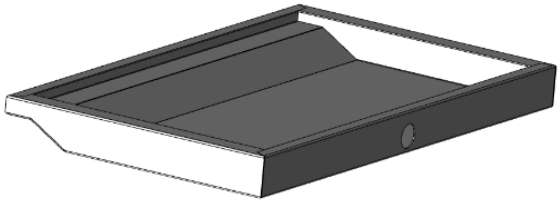
3.3.2 Improvements

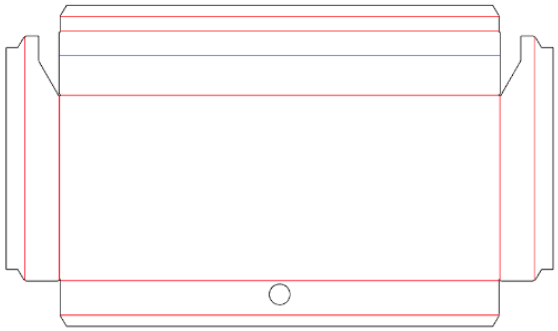
Part processing shortcomings related to length units, missing bend lines, improper contours and other issues on a range of models have been resolved and are included in this new version. Some sample parts that are now correctly unfolded are shown below.

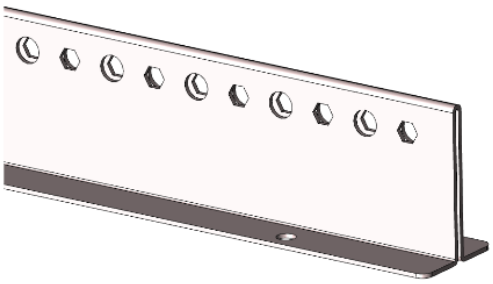


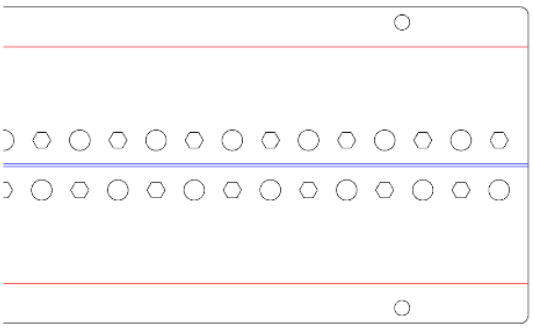


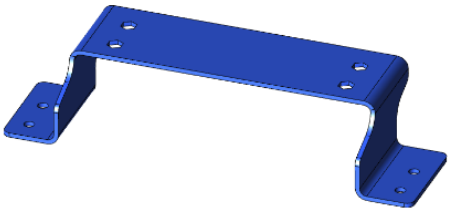


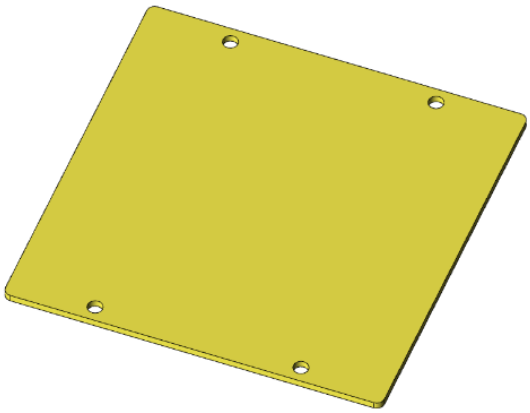


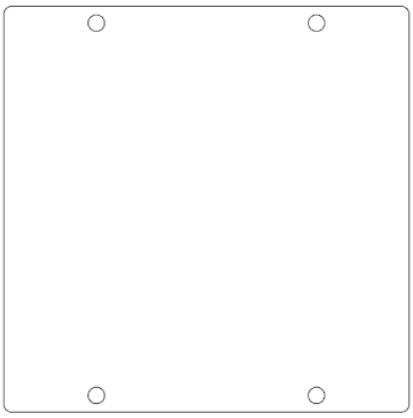












Recognition issues related to engraving contours have also been solved, as shown in the following sample.