



**SPEEDWORKS**  
ADVANCED

**(5.0.2)**

## **User's Manual**

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**solid****T**

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# I. SpeedWorks Introduce

## 1. Key Feature

### SOLIDWORKS Extension Add-in **SpeedWorks**

It is a program aiming for convenient and speedy design.



- ✓ Batch job instead of doing repetitive works.
- ✓ Maximize work efficiency using a program.
- ✓ Automate routines so that you can focus on design
- ✓ Prevent human errors in advance
- ✓ Minimize unnecessary tasks and gain work efficiency.
- ✓ Well customized for designers

#### A. What is SpeedWorks?

- i. It is a utility program that can be used well with SOLIDWORKS.
- ii. It provides friendly UI which is composed of CommandManager and multiple shortcut keys.
- iii. It offers diverse design tools for better convenience.
- iv. It shows tools that are suitable for a part, an assembly and a drawing environment.

#### B. SpeedWorks Benefits

- i. It relieves design stress through dealing repetitive works with a batch job program.
- ii. It offers user-friendly UI.
- iii. It reduces unnecessary works and minimizes work hours.
- iv. It prevents human errors in advance.

#### C. Program Copyright

SpeedWorks is registered as C-2020-030568 in the Korea Copyright Commission for the copyright protection.

#### D. SpeedWorks Support Environment

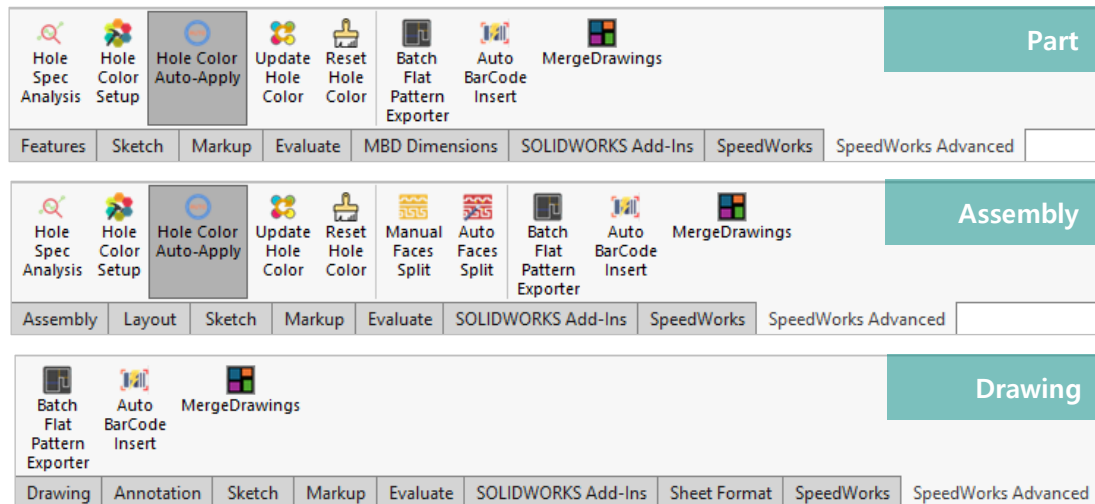
- i. SOLIDWORKS Desktop
- ii. SOLIDWORKS Connected

## 2. Program Composition

### A. User Interface

- i. It works well with SOLIDWORKS and can be used as a tool list for the CommandManager.
- ii. There are tools that users can use practically on **different task environments** including a part, an assembly and a drawing.
- iii. **SpeedWorks Advanced provides additional CommandManager tab.**

#### [SpeedWorks Advanced CommandManager]



### B. List and Summary of Functions

- i. **Batch Job**
  - **Batch Flat Pattern Exporter:** Batch Exporting flat pattern based on type and layer options into DWG/DXF
  - **Auto Barcode Insert:** Generate and insert barcode/QR code into drawings in batches.
  - **MergeDrawings:** Combining multiple 2D drawings into a single DWG file with the layout configuration desired by the user.
- ii. **Modeling**
  - **Hole Color Manager:** Apply a unique color to the hole with a color specified according to the size and depth of the hole.
  - **Auto Faces Split:** Exploring contacted faces and generate split lines on models.

## C. Function Matrix

△: A function with this sign can be used in the assembly which consists of less than 30 components.

□: It is possible to use under 5 multibody model.

⊕: It is possible to use under 5 files.

※ SpeedWorks Advanced is only available in PC that installed SpeedWorks Basic Version.

※ SpeedWorks advanced are able to purchase as individual function.

Category	Function	Free Version	Basic Version	Advanced Version
Batch Job	Batch Property Material	△	○	-
	Batch Convert Drawings	△	○	-
	Configuration Manager	△	○	-
	Component Explorer	△	○	-
	Batch Drawing Template Change	△	○	-
	Cut List Properties	○	○	-
	Manage Properties tab files	○	○	-
	Cut List Items	○	○	-
	Copy Property	⊕	○	-
	Batch Rebuild	⊕	○	-
	Batch Flat Pattern Exporter	X	X	○
	Auto Barcode Insert	X	X	○
Modeling	Primitives	○	○	-
	Parameter Coordinate System	○	○	-
	Create Batch Hole	○	○	-
	3D Sketch Conversion	○	○	-
	Create Batch Point	○	○	-
	Booster	○	○	-
	Hole Color Editor	X	X	○
	Auto Faces Split	X	X	○
Drawing	Advanced Layer	X	○	-
	Insert Hole Spacing Dim.	○	○	-
	Sketch Centerline	X	○	-
	Hide Distant Edges	X	○	-
	Hole Count Delimiter	X	○	-
	3D Center Mark	X	○	-
	Font Converter	○	○	-
	Countersink Depth	○	○	-
	Tolerance Manager	○	○	-
	MergeDrawings	X	X	○
File Management	Rename Component	△	○	-
	Component Separation	△	○	-
	Batch Rename	△	○	-
	Folder Cleaner	○	○	-
	Find Current File	○	○	-
	Save As in Location	○	○	-
	MultiBody Separation	□	○	-
	Tree Organizer	△	○	-
	Component Drawing List	○	○	-
Option	SpeedWorks Option	○	○	-
	SpeedWorks Information	○	○	-

## II. SpeedWorks Advanced Getting Started

### 1. User Interface

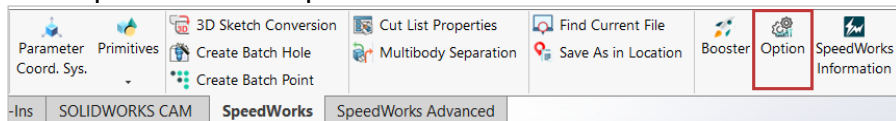
A. The following list shows the minimum system requirements for SpeedWorks.

Mandatory Program	Version	Description
<b>Operating System</b>	Windows 10 or later Version 64Bit	
<b>Microsoft .NET Framework</b>	4.6.1 version or later version	A basic program of Windows.
<b>SOLIDWORKS</b>	2020 version or later version	Supports the latest version, 2024 version
<b>eDrawings</b>	2020 version or later version	A mandatory program in installing SOLIDWORKS.
<b>Excel (Microsoft Office)</b>	2008 version or later version	

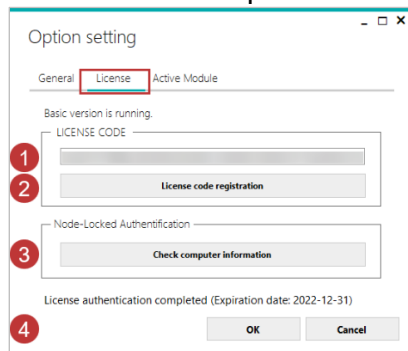
### 2. License Authentication

A. License Authentication (offline)

i. Click 'Option' button in SpeedWorks tab.

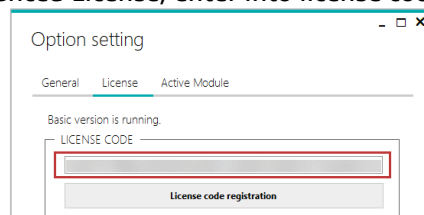


ii. Select License tab in Option.

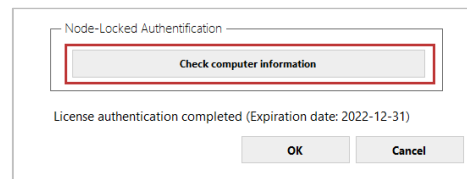


- ① LICENSE CODE: Enter SpeedWorks Advanced License Code.
- ② License code registration: Register SpeedWorks Advanced license code.
- ③ Check computer information: This is for issue license code based on computer unique information.
- ④ Status: Display current license code status.

iii. If you have SpeedWorks Advanced License, enter into license code and register.



- iv. If you want to issue a hardware-based license, select 'Check computer information' to generate PC info file. And send the file to reseller who purchased SpeedWorks, or SolidIT Co., by email



# III. Batch Job

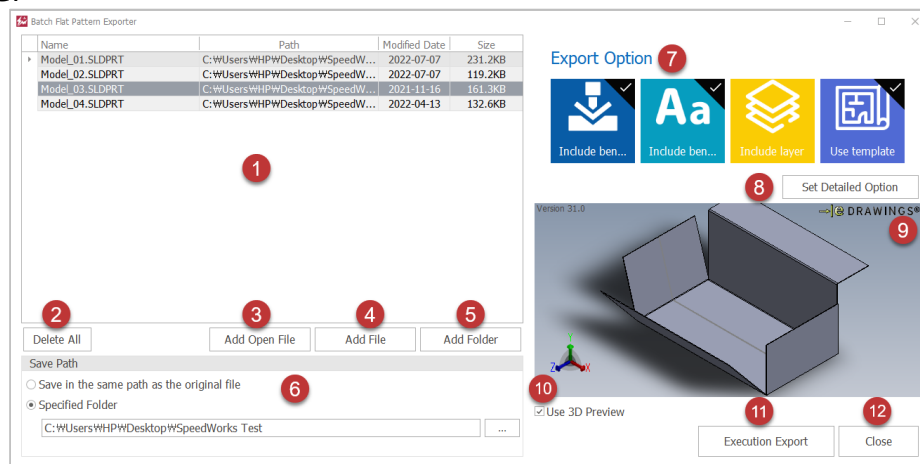
## 1. Batch Flat Pattern Exporter

Batch Flat Pattern Exporter is a program that create flat pattern drawing from sheet metal part file and print it as DWG or DXF format. It is a function that makes it easy to create drawings with using bend line, layer, and drawing template options

### A. User Interface

For engineer convenient, we provide various tools for design such as file list, 3d model preview and option tools.

#### i. Main UI



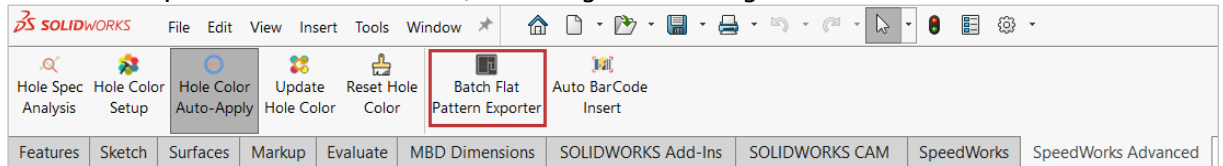
- ① **File list:** It is target file list to print out flat draw.
- ② **Delete All:** Delete all files from file list.
- ③ **Add Open File:** Add an open drawing file to SOLIDWORKS.
- ④ **Add File:** Add part file to file list.
- ⑤ **Add Folder:** Add part files in specified folder.
- ⑥ **Save path:**  
Save in the same path as the original file - Save the resulting file to the same path as the listed file path  
Specified folder - Users can save the results to the specified folder.
- ⑦ **Export Option:**  
Include bendline - Including bendline when exporting file.  
Include bendnote - Including bendnot when exporting file. "Include bendline" is required to check.  
Include layer – According to specified layer item, layer will be applied.  
Use template - export flat pattern by using specified SOLIDWORKS drawing template file
- ⑧ **Set Detailed Option:** It is possible to set detail options such as Template, layer, save option and etc.
- ⑨ **Preview:** Selected file in file list can preview as 3D preview or bitmap preview.
- ⑩ **Use 3D Preview:** turn on 3D preview mode.
- ⑪ **Execution Export:** exporting flat pattern files in file list by specified options.
- ⑫ **Close:** Close the fuction.



## B. Using Tool

- i. Select 'Batch Export Flat Pattern' in SpeedWorks Advanced tab to launch the tool.

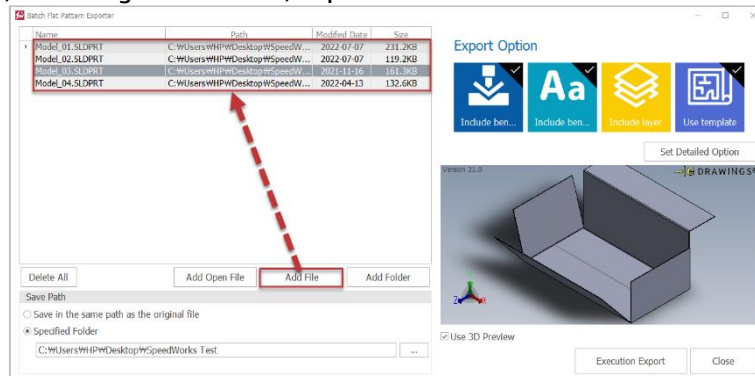
It is possible to access in Part, Assembly and Drawing.



- ii. By 'Add File' button, add part files to export flat pattern.

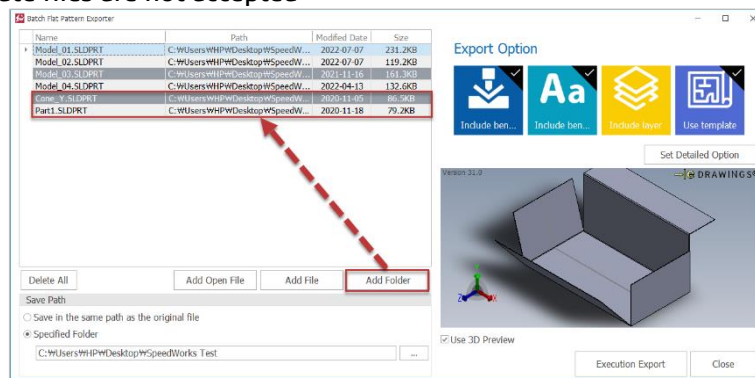
Support multiple selection.

In case, assembly file is added, explorer sheet metal file and create flat pattern.



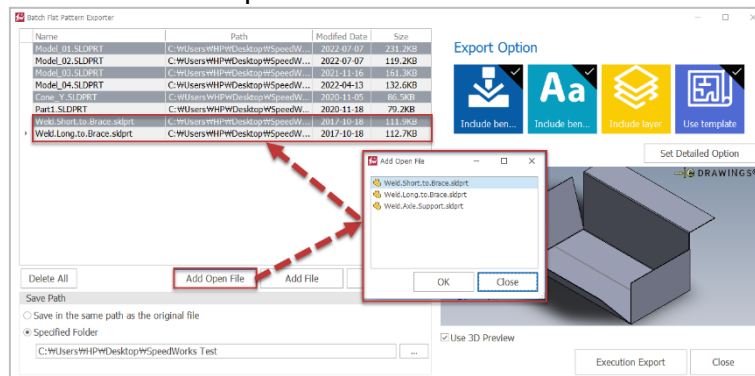
- iii. By 'Add Folder' button, users could add all SOLIDWORKS Part files in folder.

Duplicate files are not accepted



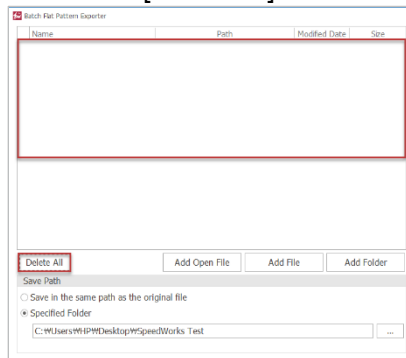
- iv. By 'Add Open File' button, users could add open files to SOLIDWORKS in batches.

Duplicate files are not accepted

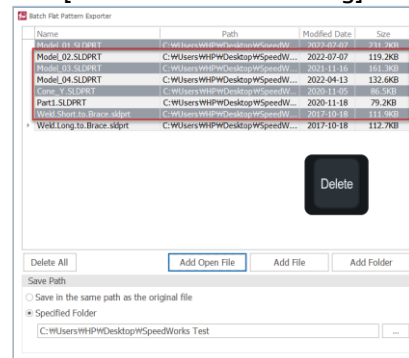


- v. If users want to delete added files, users can select them and delete them with the 'Delete' key, or users can delete the list in bulk through the Delete All button.

[Delete All]



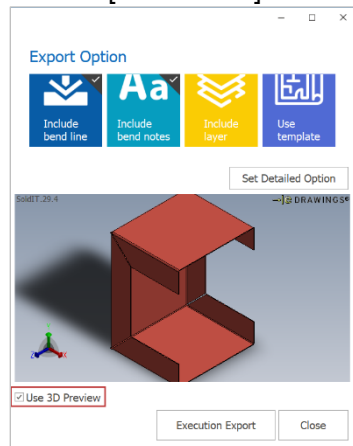
[Selection – 'Delete' Key]



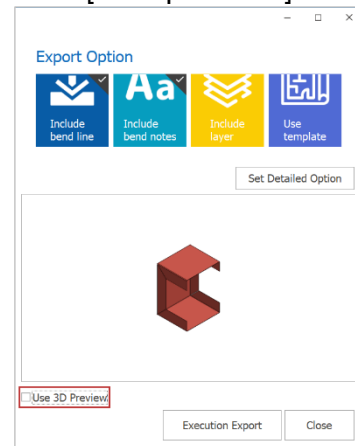
- vi. When users select an added file, users can see a 3D preview or a bitmap preview in the preview view.

- ⚠ Users can switch 3D preview and bitmap view by checking 'Use 3D Preview'

[3D Preview]



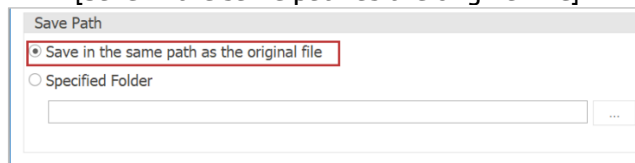
[Bitmap Preview]



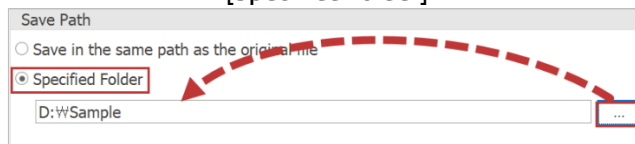
- vii. Through save path option, users can specify file path to export. When users check the 'Save in the same path as the original file', it is output in the same path as the original part file. If users check the 'specified folder', the output will be in the specified folder.

- ⚠ The specified folder path entered is automatically saved, and the specified path is automatically retrieved when the program is re-executed.

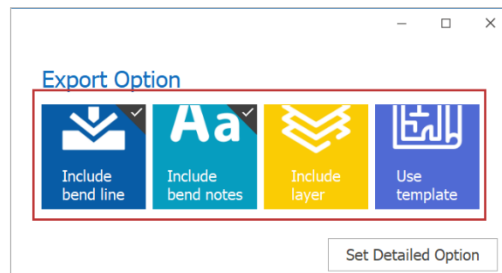
[Save in the same path as the original file]




[Specified folder]

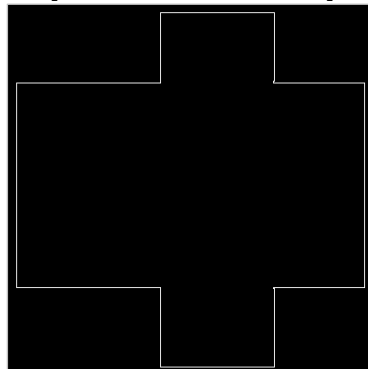


- viii. Through 'Export option', users can export necessary format. Below options are multi-selectable.

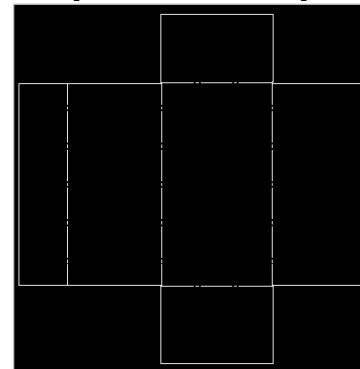



- 
**Include bend line**  
 Exporting flat pattern with bend line.

[Bend line not included]

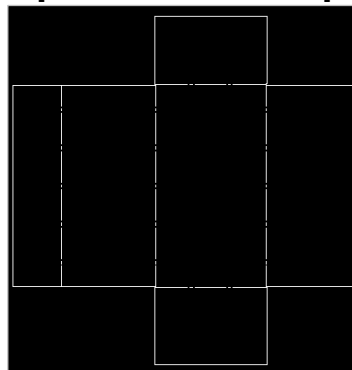


[Bend line included]

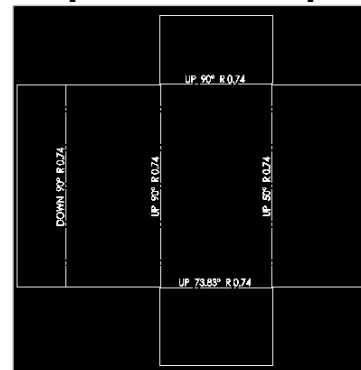


- 
**Include bend note**  
 Exporting flat pattern with bend note. Available only when the bend line option is enabled.

[Bend note not included]



[Bend note included]

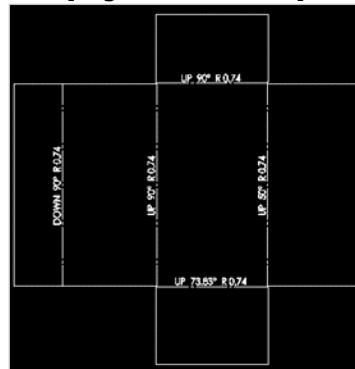




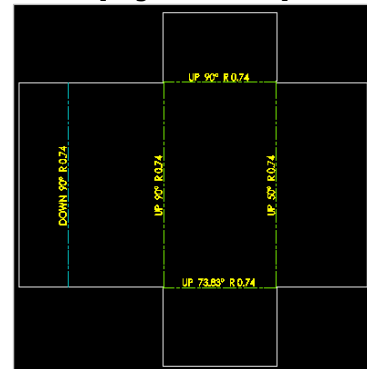
- **Include layer**

Based on specified layer option in 'Set detailed option', layers are applied to export flat pattern.

[Layer not included]



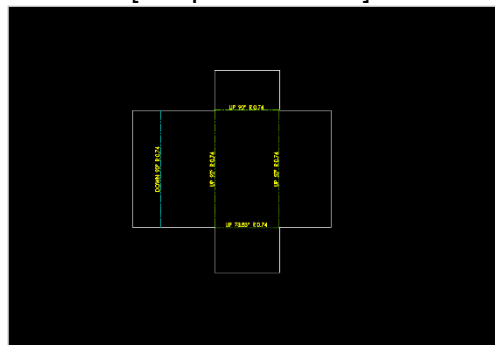
[Layer included]



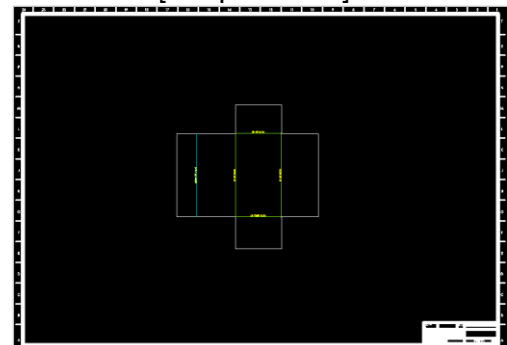
- **Use template**

It is possible to export flat pattern using with template that using in user's company. If users do not use a template, an empty template format development view is output.

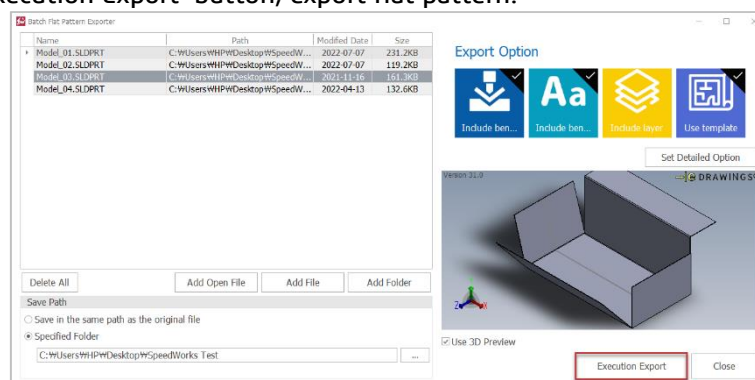
[Template not used]



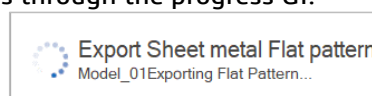
[Template used]



ix. By selecting 'Execution Export' button, export flat pattern.

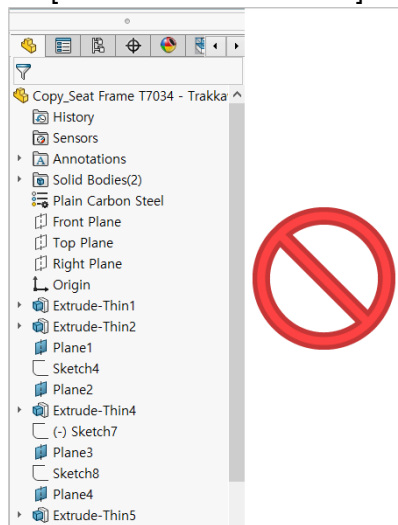


x. Users can check current progress through the progress UI.

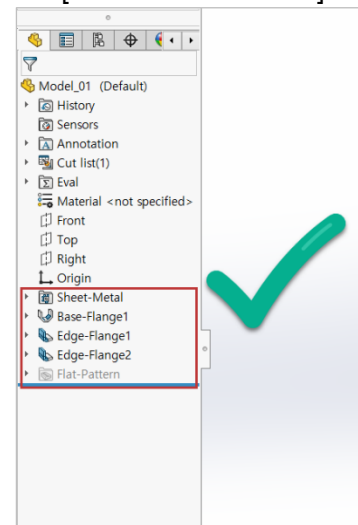


- xi. If file is not a sheet metal file, it is excluded from the flat pattern export job.

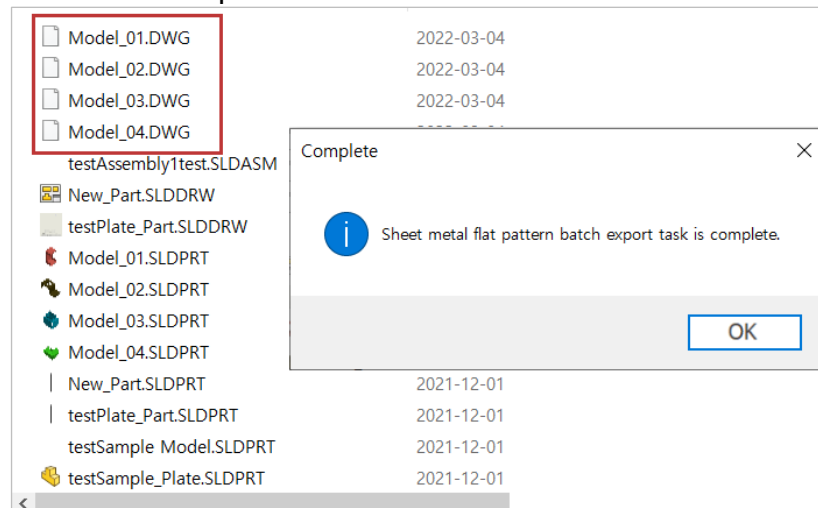
[Not sheet metal file case]



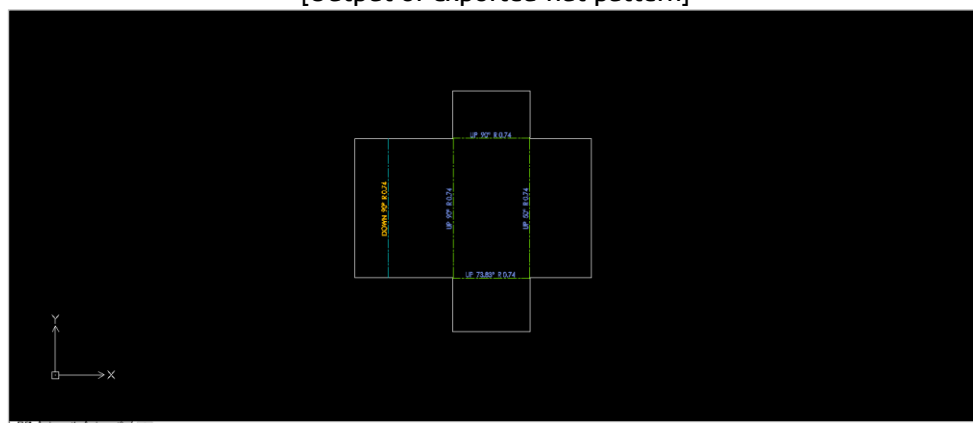
[Sheet metal file case]



- xii. All flat pattern file has been exported.

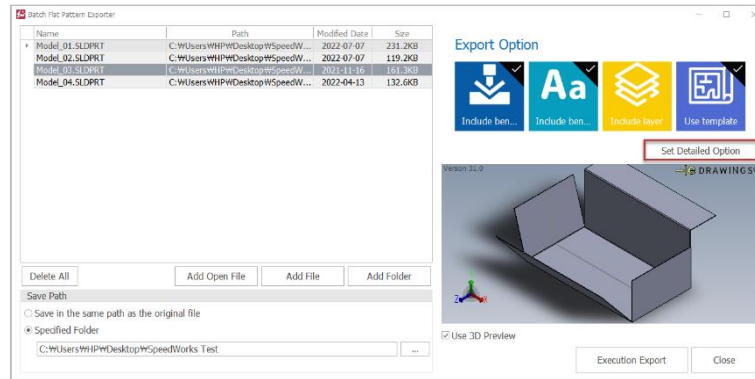


[Output of exported flat pattern]



## C. Using 'Set Detailed Option'

- i. To export customized flat pattern, users can specify options about template, layer and save options.

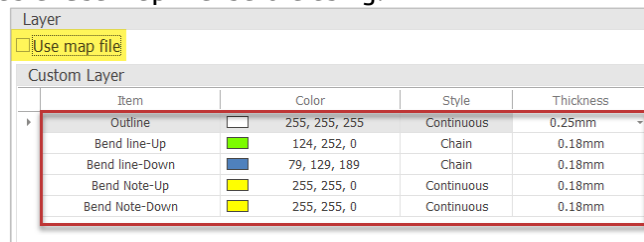


- ii. To apply one's company template to flat pattern, specify drawing template file.

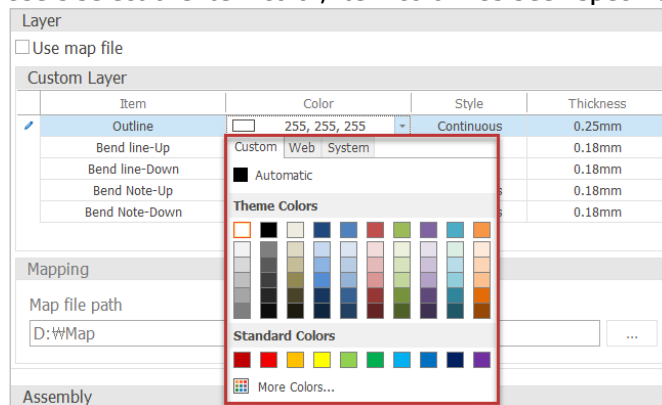


- iii. If users want to give each element layer to the flat shape of view, users can specify it through the layer option. Users can export the flat pattern of the desired shape by specifying the color, style, and thickness for each item.

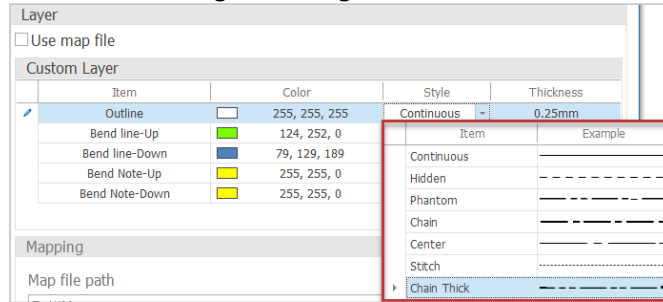
⚠ Please disable 'Use map file' before using.



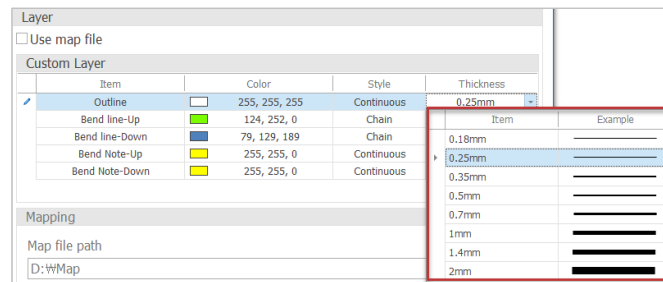
- Color – If users select the item color, item color has been specified.



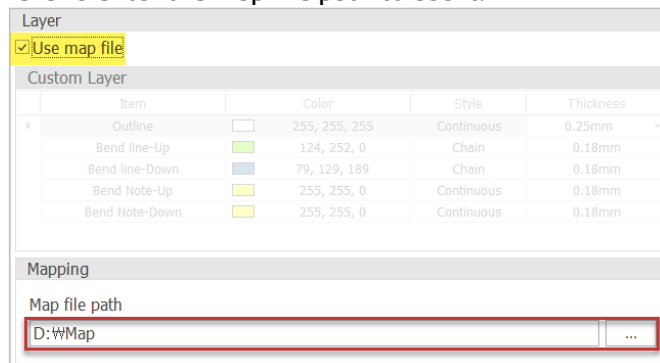
- **Style** - If users select the item style, line style can be selected.



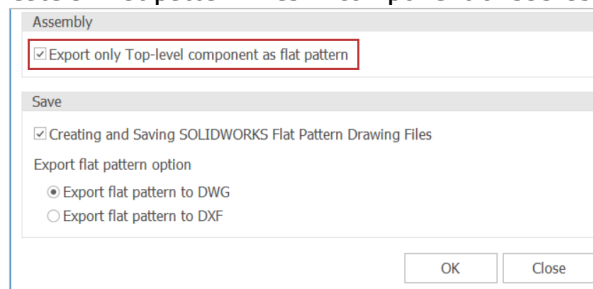
- **Thickness** - If users select the thickness of the item, users can select the thickness level.



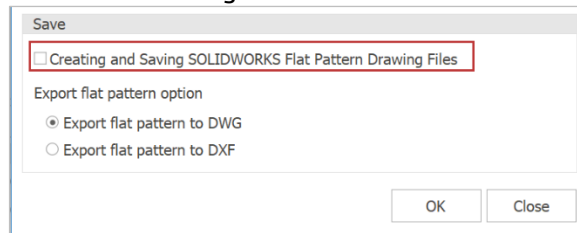
- iv. When saving a DWG, you can apply the SOLIDWORKS map file to the layer and save it. Activate 'Use map file' and enter the map file path to use it.



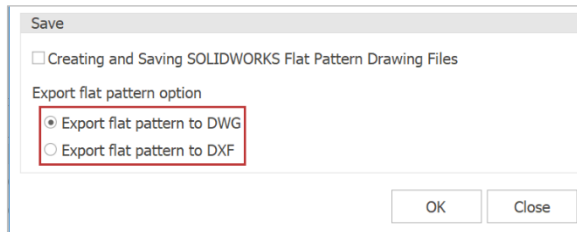
- v. This is an option that only create flat pattern file of component of top-level assembly. If this option is unchecked, create all flat pattern files in component of sub-assemblies.




- vi. If users want to generate a SOLIDWORKS drawing file as well when exporting a flat pattern, users can automatically create a SOLIDWORKS drawing file by activating the 'Creating and Saving SOLIDWORKS Flat Pattern Drawing Files'.

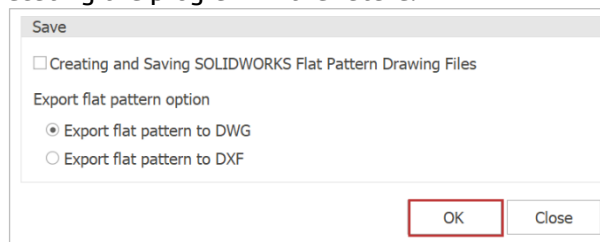


- vii. Users can select flat pattern format in DWG or DXF



- viii. When all options are set, select the OK button to finish.

-  Option information is automatically saved so that the applied option can be used as it is when re-executing the program in the future.





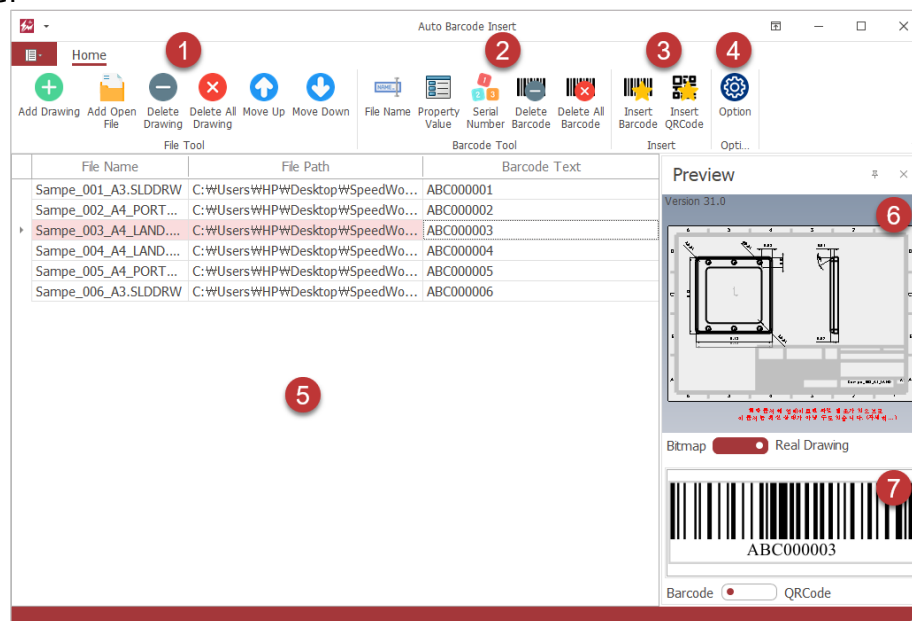
## 2. Auto Barcode Insert

Auto Barcode Insert is a program that can insert barcodes into multiple drawing files in batches. Based on the entered barcode text, barcodes or QR codes can be automatically generated and automatically inserted in a batch at a specified location. Through barcode inserted drawing, designer can deliver much information to manufacture section.

### A. User Interface

Various tools such as ribbon menu, file tool, drawing preview, barcode preview, etc. are provided for the convenience of designers.

#### i. Main UI

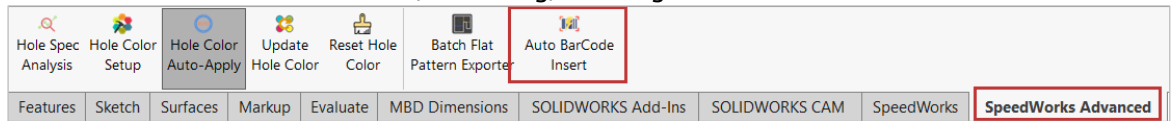


- ① **File Tool:** A toolbar that allows user to edit the file list, such as adding, removing, or moving drawing files.
- ② **Barcode Tool:** A toolbar that can automatically create or delete barcode text.
- ③ **Insert:** It is a toolbar that allows you to insert barcodes or QR codes for drawings added to the file list in batches.
- ④ **Option:** This is an optional tool that allows user to change the setting of the barcode automatic inserting method to suit user environment.
- ⑤ **File List:** It is target file list to insert barcode/QR code.
- ⑥ **Drawing Preview:** User can check drawing by 3D preview or Bitmap preview through eDrawings.
- ⑦ **Barcode Preview:** Based on the barcode text value entered for each drawing file, user can check the barcode and QR code preview.

## B. Using Tool

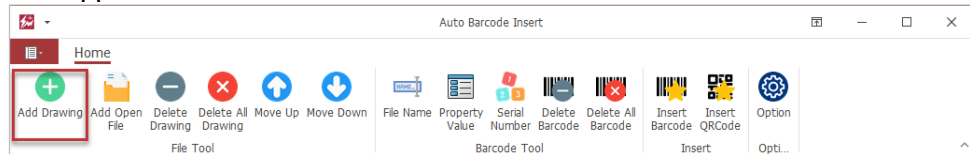
- i. To execute Auto Barcode Insert program, click 'Auto Barcode Insert' in SpeedWorks Advanced tab.

It is able to access in Part, Assembly, Drawing mode.



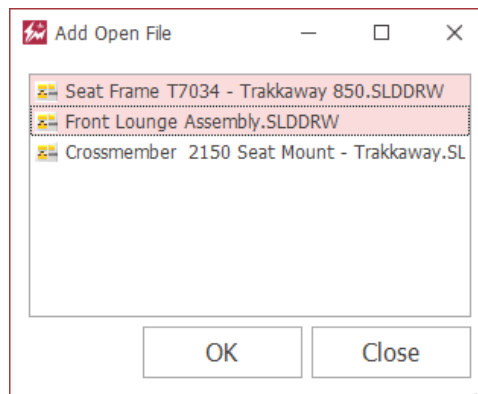
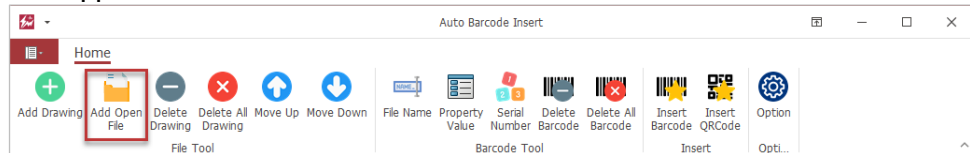
- ii. Adding target drawing through Add Drawing button.

It supports multi-select function.



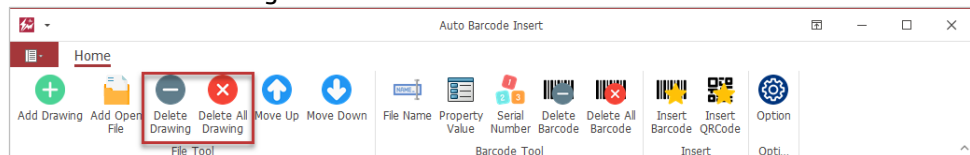
- iii. Select the 'Add Open File' button to add open drawing files to SOLIDWORKS.

It supports multi-select function.



- iv. User can delete the added drawing file list through the Delete or Delete All button.

Delete button is only available when item selected in file list.



[Before Delete]

File Name	File Path	Barcode Text
Sampe_001_A3.SLD...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_002_A4_PO...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_003_A4_LAN...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_004_A4_LAN...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_005_A4_PO...	D:\Sample\W\AutoBarcodeInsert ...	

[After Delete]

File Name	File Path	Barcode Text
Sampe_001_A3.SLD...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_003_A4_LAN...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_004_A4_LAN...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_005_A4_PO...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_006_A3.SLD...	D:\Sample\W\AutoBarcodeInsert ...	

[Before Delete All]

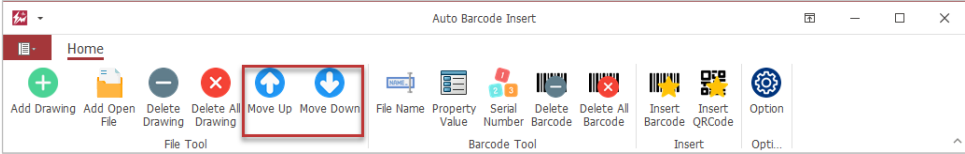
File Name	File Path	Barcode Text
Sampe_001_A3.SLD...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_002_A4_PO...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_003_A4_LAN...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_004_A4_LAN...	D:\Sample\W\AutoBarcodeInsert ...	
Sampe_005_A4_PO...	D:\Sample\W\AutoBarcodeInsert ...	

[After Delete All]

File Name	File Path	Barcode Text

- v. File listing order can change through Move Up and Move Down button.

It is possible to move multiple files.



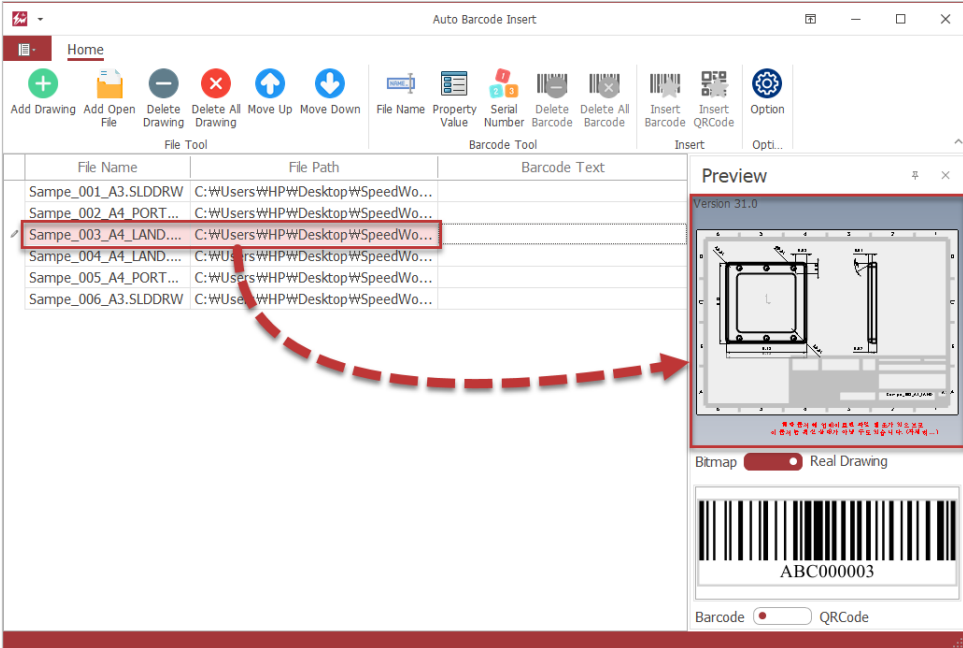
**[Before Move Up]**

File Name	File Path
Sampe_001_A3.SLD...	D:\Sample\AutoBarcodeInsert Training...
Sampe_002_A4_PO...	D:\Sample\AutoBarcodeInsert Training...
Sampe_003_A4_LAN...	D:\Sample\AutoBarcodeInsert Training...

**[After Move Up]**

File Name	File Path
Sampe_001_A3.SLD...	D:\Sample\AutoBarcodeInsert ...
Sampe_003_A4_LAN...	D:\Sample\AutoBarcodeInsert ...
Sampe_002_A4_PO...	D:\Sample\AutoBarcodeInsert ...

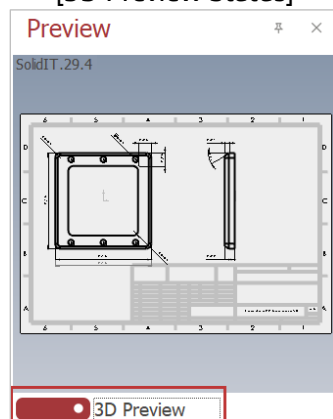
- vi. If user select a file from the list, user can easily check the drawing through the drawing preview on the right.



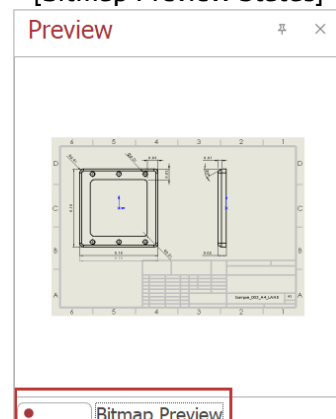
The interface shows a table with columns: File Name, File Path, and Barcode Text. The file 'Sampe\_003\_A4\_LAND...' is selected. To the right, a 'Preview' window displays a technical drawing of a mechanical part. Below the drawing, there are options for 'Bitmap' and 'Real Drawing', and a 'Barcode' section with a QR code option.

- vii. By changing the drawing preview mode, user can see a 3D preview or a bitmap preview.

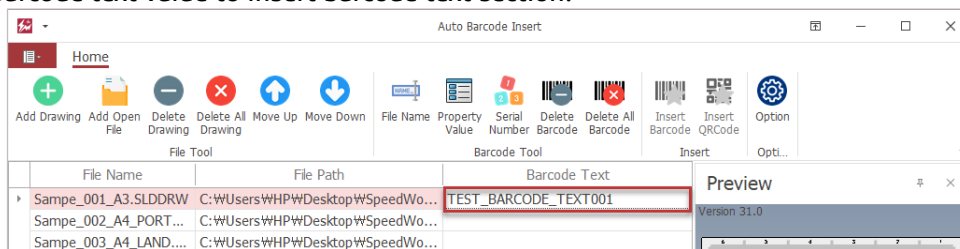
[3D Preview Status]



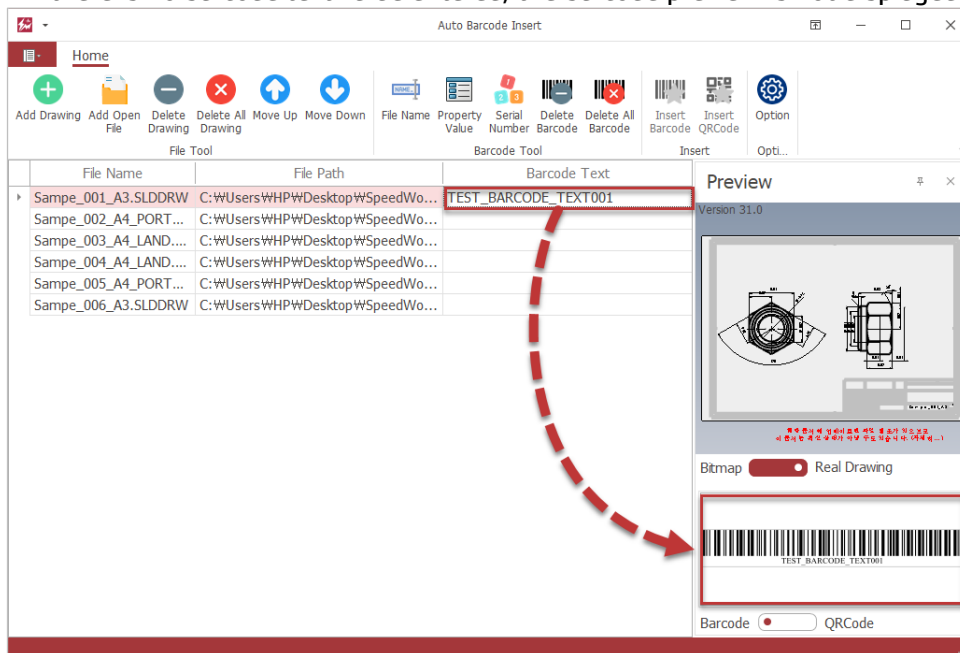
[Bitmap Preview Status]



- viii. Enter barcode text value to insert barcode text section.



- ix. User can check barcode preview on right side by selecting an item in file list.  
 If there is no barcode text value entered, the barcode preview is not displayed.



- x. By changing the barcode preview mode, user can check the barcode preview or QR code preview.

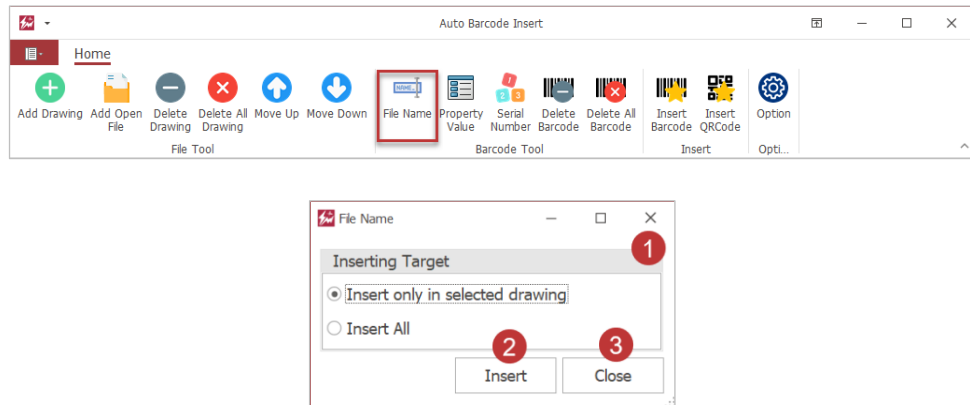
[Barcode Preview Status]



[QR Code Preview Status]



- xi. File Name tool allows user to create file Name based barcodes on barcode text.



- ① **Insert Target:** Enter the file name of only the selected item in the file list, or enter the file name in the barcode text of the entire file list.
- ② **Insert:** The file name value is entered in the barcode text based on the information user set.
- ③ **Close:** Close the tool.

- xii. Depending on the selected items, user can insert a file name into the barcode text of the selected item or the entire barcode text.

- 🔔 The barcode text value is inserted as a value excluding the extension in the file name.

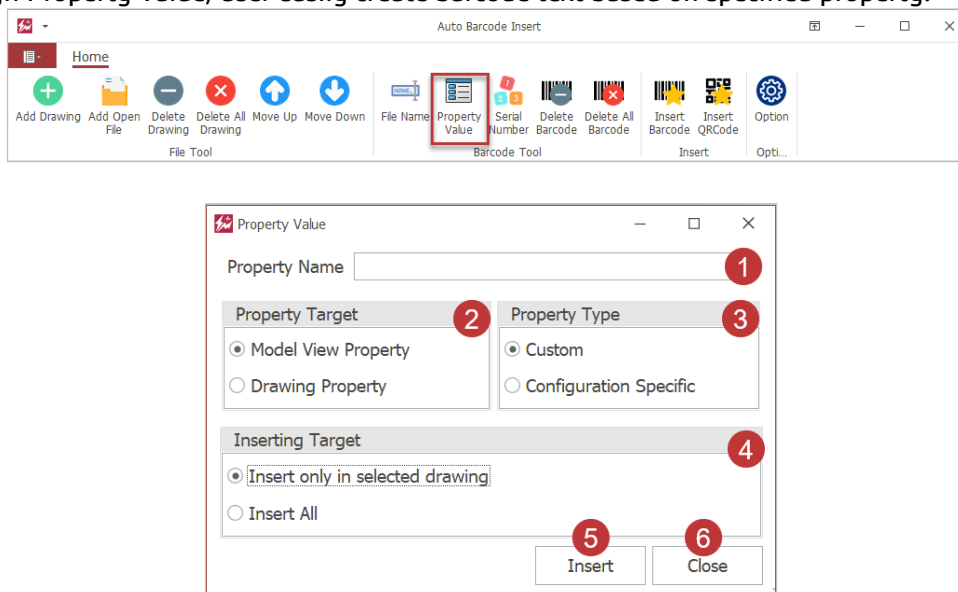
[Insert only in selected drawing]

	File Name	File Path	Barcode Text
	Sampe_001_A3.SLD...	D:\₩Sample₩AutoBarcodeInsert ...	
	Sampe_002_A4_PO...	D:\₩Sample₩AutoBarcodeInsert ...	Sampe_002_A4_PORT
✎	Sampe_003_A4_LAN...	D:\₩Sample₩AutoBarcodeInsert ...	Sampe_003_A4_LAND

[Insert All]

	File Name	File Path	Barcode Text
	Sampe_001_A3.SLD...	D:\₩Sample₩AutoBarcodeInsert ...	Sampe_001_A3
	Sampe_002_A4_PO...	D:\₩Sample₩AutoBarcodeInsert ...	Sampe_002_A4_PORT
✎	Sampe_003_A4_LAN...	D:\₩Sample₩AutoBarcodeInsert ...	Sampe_003_A4_LAND

xiii. Through Property Value, user easily create barcode text based on specified property.



- ① **Property Name:** Enter property name that insert into barcode text.
- ② **Property Target:** User can bring the properties of the model view inserted into the drawing, or bring the properties of the drawing file.
- ③ **Property Type:** User can choose whether to get the value from Custom property or Configuration Specific.
- ④ **Inserting Target:** Finds and enters property values for only the selected item in the file list, or finds and enters property values for all files in the entire file list.
- ⑤ **Insert:** Barcode text would be inserted based on user set.
- ⑥ **Close:** Close the property value window.

xiv. Depending on the selected target, user can insert property values into the barcode text.

- ⓘ If property value is empty, barcode text would be entered empty value.
- ⓘ Configuration Specific properties enter property values based on the active configuration.

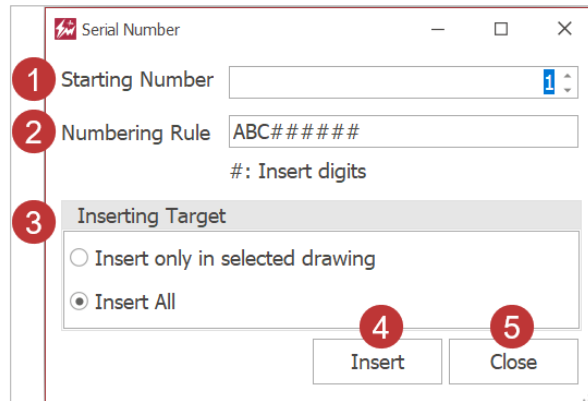
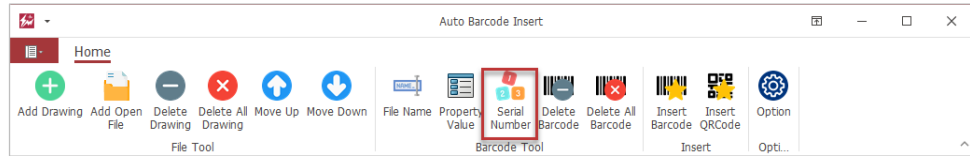
[Insert only in selected drawing]

File Name	File Path	Barcode Text
Sampe_001_A3.SLD...	D:\₩Sample₩AutoBarcodeInsert ...	
Sampe_002_A4_PO...	D:\₩Sample₩AutoBarcodeInsert ...	0101 01015
Sampe_003_A4_LAN...	D:\₩Sample₩AutoBarcodeInsert ...	0315 02005-11

[Insert All]

File Name	File Path	Barcode Text
Sampe_001_A3.SLD...	D:\₩Sample₩AutoBarcodeInsert ...	0114 24020
Sampe_002_A4_PO...	D:\₩Sample₩AutoBarcodeInsert ...	0101 01015
Sampe_003_A4_LAN...	D:\₩Sample₩AutoBarcodeInsert ...	0315 02005-11

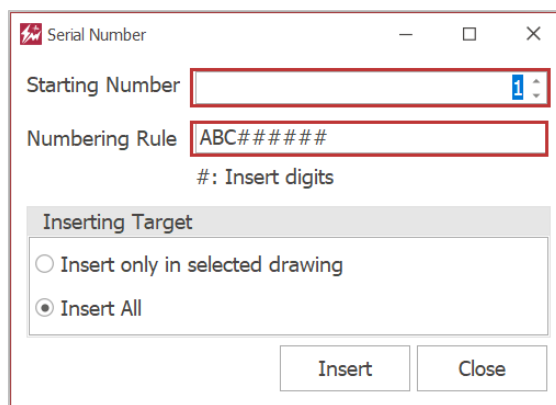
- xv. The serial number tool allows user to batch enter serial number into barcode text.



- ① **Starting Number:** Specify starting number of Serial Number.
- ② **Numbering Rule:** Specifies the rules for serial number input values. Number value is generated based on '#' position and number of digits
- ③ **Inserting Target:** Enters serial number for only the selected item in the file list, or enters serial number for all files in the entire file list
- ④ **Insert:** Enter the serial number for only the selected item in the file list, or enter the serial number for the entire file list.
- ⑤ **Close:** Close the Serial Number window.

- xvi. Through starting number and Numbering rule, user can insert serial number in batched into barcode text.

- ❗ Enter # into numbering rule to make serial number.
- ❗ '#' should be entered consecutively.
- ❗ (example) starting number:1, numbering rule: ABC#####, result: ABC000001, ABC000002...



- xvii. Depending on the inserting target, it can be inserted into the selected item in the file list or the entire barcode text.



Item must be selected before use Insert only in selected drawing. If there is no selected item in the file list, no value is entered.

[Insert only in selected drawing]

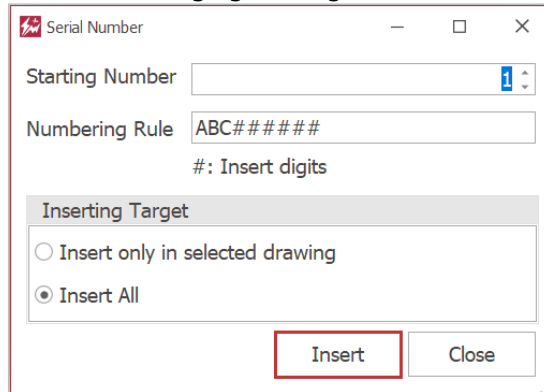
	File Name	File Path	Barcode Text
	Sampe_001_A3.SLD...	D:\₩Sample₩AutoBarcodeInsert ...	
	Sampe_002_A4_PO...	D:\₩Sample₩AutoBarcodeInsert ...	ABC000001
✎	Sampe_003_A4_LAN...	D:\₩Sample₩AutoBarcodeInsert ...	ABC000002

[Insert All]

	File Name	File Path	Barcode Text
	Sampe_001_A3.SLD...	D:\₩Sample₩AutoBarcodeInsert ...	ABC000001
✎	Sampe_002_A4_PO...	D:\₩Sample₩AutoBarcodeInsert ...	ABC000002
	Sampe_003_A4_LAN...	D:\₩Sample₩AutoBarcodeInsert ...	ABC000003



- xviii. Enter barcode text values in drawing by clicking Insert button.



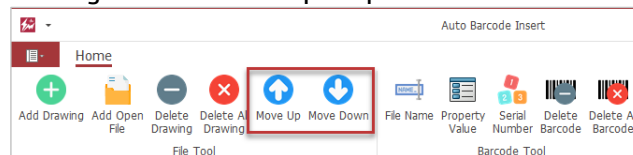
[Before Enter Serial Number]

File Name	File Path	Barcode Text
Sampe_001_A3.SLD...	D:\Sample\AutoBarcodeInsert ...	TEST_BARCODE_TEXT
Sampe_002_A4_PO...	D:\Sample\AutoBarcodeInsert ...	
Sampe_003_A4_LAN...	D:\Sample\AutoBarcodeInsert ...	

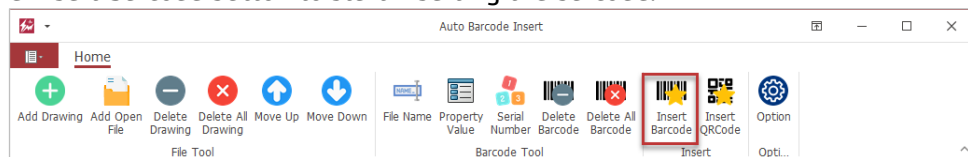
[After Enter Serial Number]

File Name	File Path	Barcode Text
Sampe_001_A3.SLD...	D:\Sample\AutoBarcodeInsert ...	ABC000001
Sampe_002_A4_PO...	D:\Sample\AutoBarcodeInsert ...	ABC000002
Sampe_003_A4_LAN...	D:\Sample\AutoBarcodeInsert ...	ABC000003

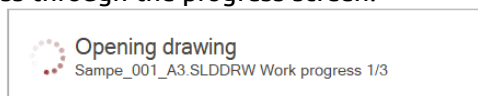
- Serial Number order follows file list. By using the Move Up and Move Down tools, user can input barcode text in the desired order by adjusting the list order of the file list and then performing serial number input operations.



- xix. Click the Insert Barcode button to start inserting the barcode.

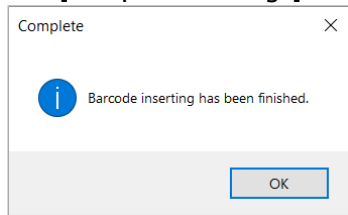


- xx. Users can check the progress through the progress screen.

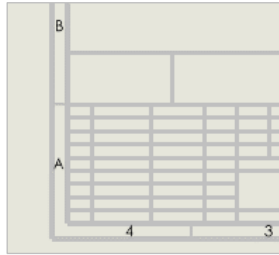


xxi. Users can check that the barcode is inserted into the drawing as follows.

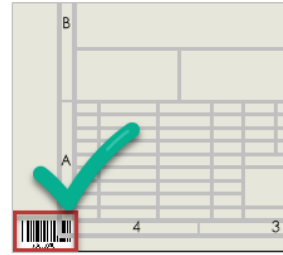
[Complete Message]



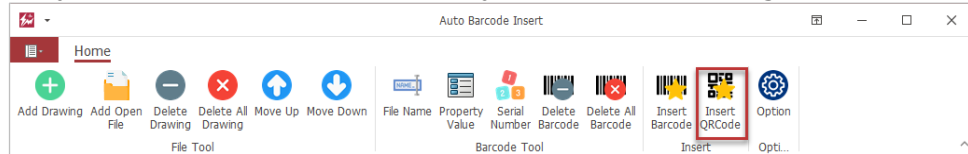
[Before Insert Barcode]



[After Insert Barcode]

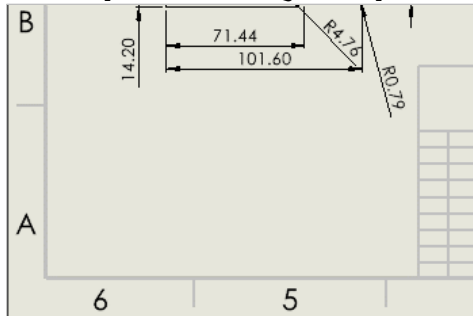


xxii. Select the QR code insert button to insert the QR code into the drawing.

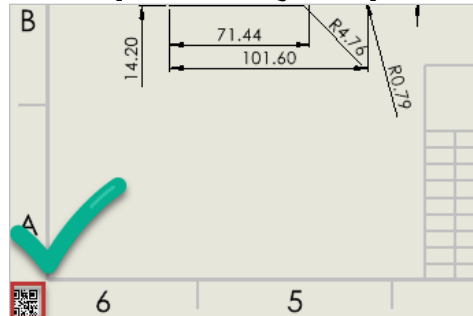


xxiii. Users can check that the QR code is inserted into the drawing as follows.

[Before Insert QR Code]

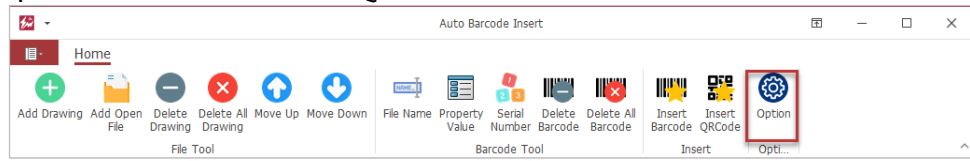


[After Insert QR Code]



## C. Option Setting

- i. Select Option button to set barcode/QR code information.

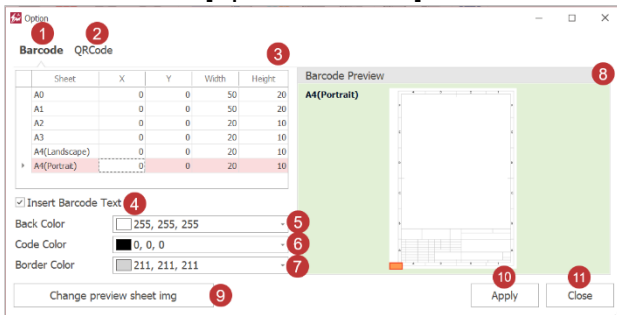


- ii. Through tab pages of Option, program support barcode/QR code setting.

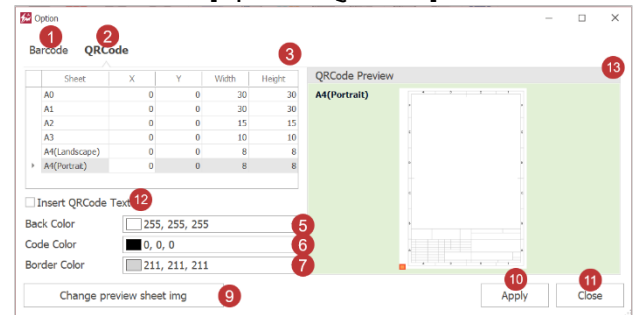
By selecting the tab, user can change the barcode/QR code settings.

The X, Y, width, and height values for each sheet, whether text is inserted, and color information values can be individually set for each barcode/QR code.

[Option - Barcode]



[Option - QR Code]

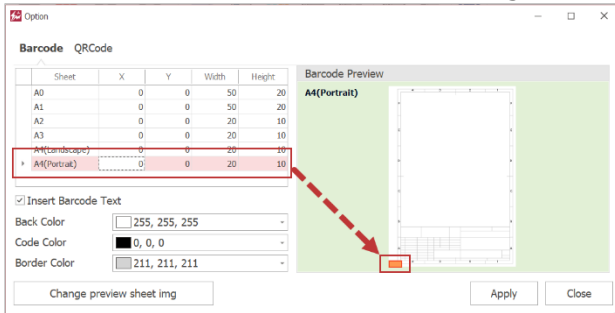


- ① **Barcode:** Set barcode coordinate position, size, color, etc.
- ② **QR Code:** Set the QR code coordinate position, size and color.
- ③ **Sheet Table:** Set the X, Y coordinate position, width, and height of barcode/QR code for each drawing sheet size.
- ④ **Insert Barcode Text:** Create barcodes with embedded text.
- ⑤ **Back Color:** Specifies the background color of the barcode/QR code.
- ⑥ **Code Color:** Specifies the code color of the barcode/QR code.
- ⑦ **Border Color:** Specifies the border color of the barcode/QR code.
- ⑧ **Barcode Preview:** Users can check the position and size values of the barcodes specified for each sheet table through preview.
- ⑨ **Change preview sheet img:** This option allows user to change the sheet image displayed in the preview to the in-house drawing template image.
- ⑩ **Apply:** Saves the specified option information.
- ⑪ **Close:** Close Option window.
- ⑫ **Insert QR Code Text:** Generates a QR code with embedded text.
- ⑬ **QR Code Preview:** Users can check the location and size of the specified QR code for each sheet table through preview.

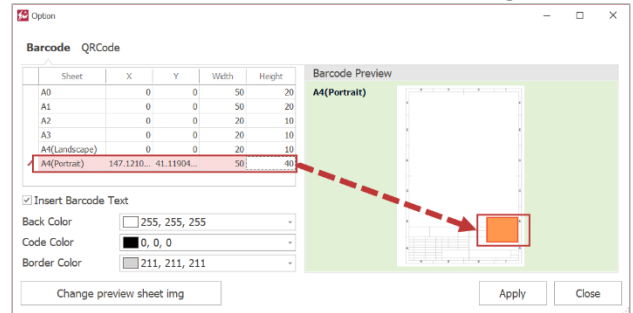
- iii. By selecting an item in the sheet table, user can specify the X, Y coordinate position and width and height values of the barcode for each sheet.

! User can specify the barcode/QR code position by clicking and dragging in the barcode preview.

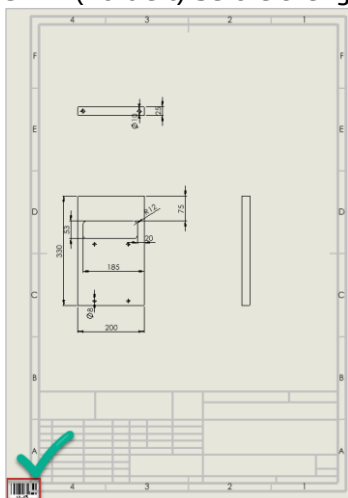
[Barcode - A4(Portrait) before change]



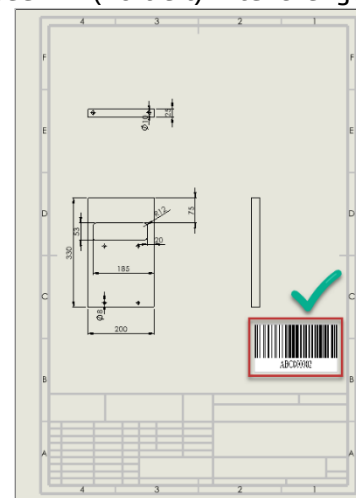
[Barcode - A4(Portrait) after change]



[Barcode - A4(Portrait) Before change result]

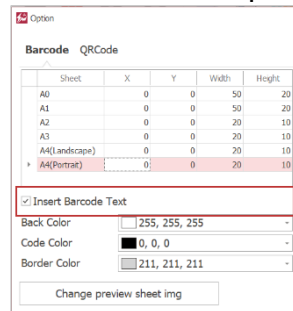


[Barcode - A4(Portrait) After change result]

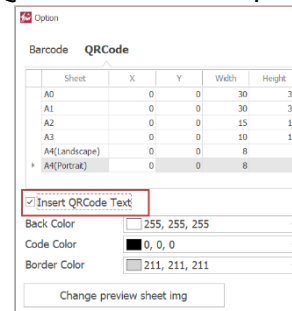


- iv. Barcode/QR Code Text Insertion allows user to embed text into barcodes.

[Barcode text insert option]



[QR Code text Insert option]



[Result of not inserted text in Barcode/QR Code]



[Result of inserted text in Barcode/QR Code]



- v. User can specify the color of the background, code, and border for barcode/QR code.

⚠ The code recognition rate may be lowered depending on the color you set, so please be careful about changing the color.

[Before change barcode color]

[Result of before change color]



[After change barcode color]

[Result of after change color]



- vi. By changing the preview sheet image, user can change the image of the sheet displayed in the preview to the in-house drawing form.

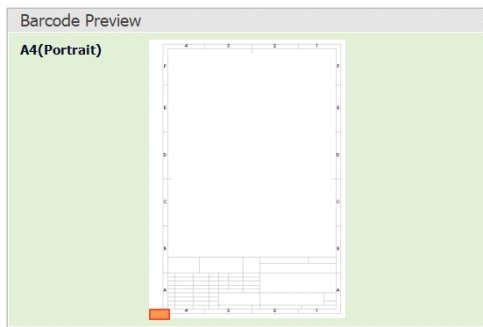
⚠ If there is no preview sheet image or the file does not exist, the default sheet image is displayed.

⚠ Images can be set individually for each sheet size such as A0, A1, A2, etc.

⚠ Sheet images can be easily created in SOLIDWORKS by saving the drawing file as a .png or .jpg file with a different name.

- ① **Sheet image path:** Image file path to use as per-sheet preview.
- ② **Specify Image:** Specifies the thumbnail file for each sheet.
- ③ **Apply:** Applies the specified image path value per sheet.
- ④ **Close:** Close the preview sheet image window.

[Before change sheet thumbnail image]

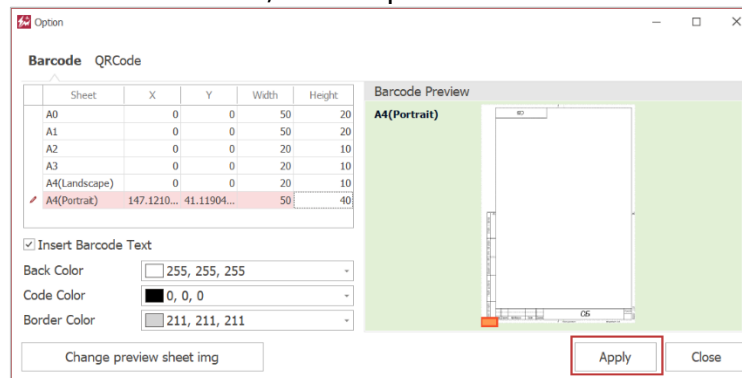


[After change sheet thumbnail image]



vii. Select the Apply button to save your options.

⚠ If you select the close button, the set option information is not saved.



# IV. Modeling


## 1. Hole Color Editor

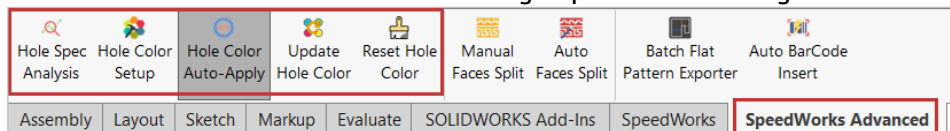
Hole color editor is a program that applying specified color into hole. It is hard to distinguish type, size and depth of a hole when there are many holes in model. Hole Color editor is a program that allows users to easily identify the specified hole by changing the color.

### A. Hole Color Editor tools

Hole color editor support various tools. It provides analysis and management functions for users using convenient.

#### i. SpeedWorks Advanced – Hole Color Editors tools

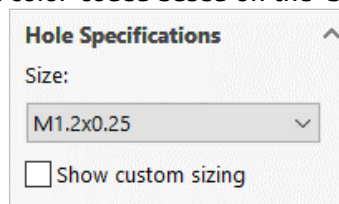
 Hole Color Editor tools are available only in part and assembly environment.



- ① **Hole Spec Analysis:** Batch add hole color configuration by analyzing current opened document.
- ② **Hole Color Setup:** Specifies the color and size to apply for each hole type. The color is inserted into the hole in the model according to its settings.
- ③ **Hole Color Auto-Apply:** This is on/off toggle button that control whether or not to apply the color corresponding to the list in real time whenever a hole is created.
- ④ **Update Hole Color:** Based on set list insert color into holes that current activated model files.
- ⑤ **Reset Color:** Remove all of hole colors from current activated model.

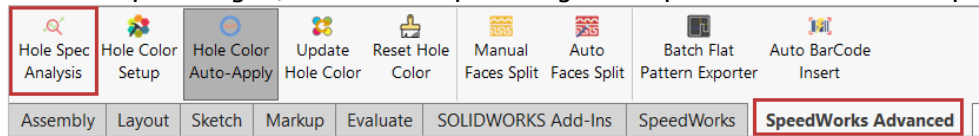
### B. Rules of target model of Hole Color Editor

- i. Insert color into holes made by Extrude Cut / Hole wizard
- ii. Holes created with extruded cuts are color-coded based on their diameter size, and holes created with the Hole Wizard are color-coded based on the 'Size' value in 'Hole Specification'.

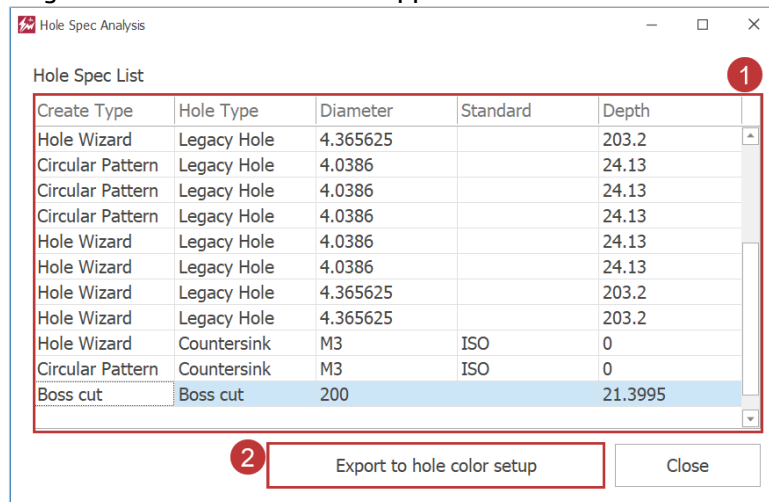


## C. Using Hole Spec Analysis

- i. To execute hole spec analysis, select 'Hole Spec Analysis' in SpeedWorks Advanced tab.



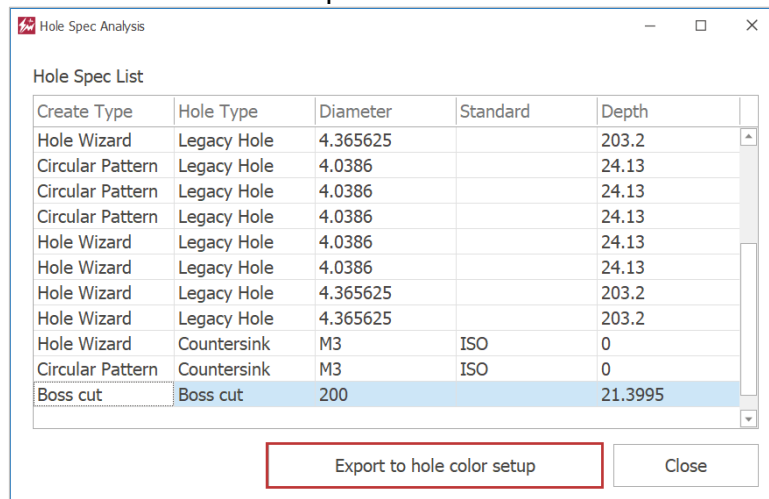
- ii. The hole spec analysis screen as shown below appears.



- ① **Hole Spec List:** By automatically analyzing the holes in the currently activated model, users can check the feature creation type, hole type, diameter, etc.
- ② **Export to hole color setup:** Through this button, users can easily add hole information to hole color setup list.

- iii. Through this function, users can add hole information to hole color setup list.

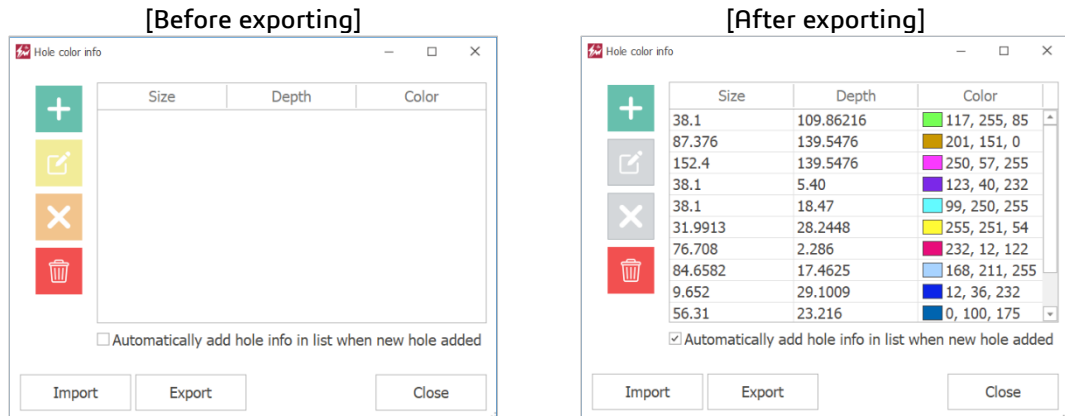
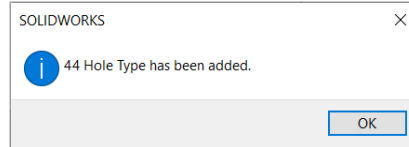
⚠ Duplicated hole information is expected to add





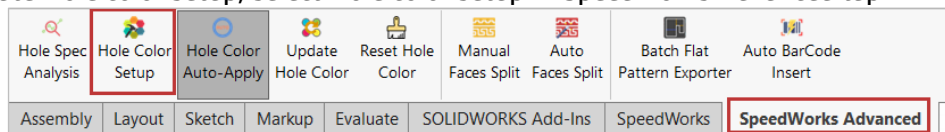
- iv. Hole information are added to hole color setup list as shown below.
- ① Refer to 'D. Using Hole Color Setup' for detailed description of Hole Color Setup.
  - ① For hole color setup, specs can be added in batch through hole spec analysis, and users can add hole specs individually.

[Finish of export to hole color setup]

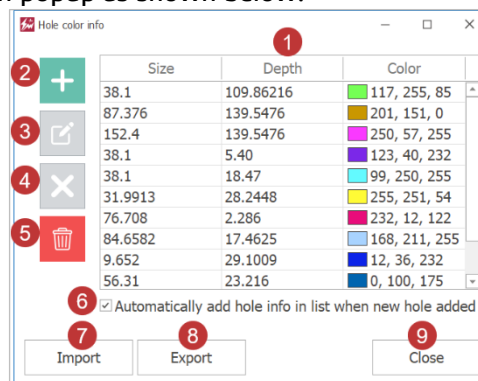


## D. Using of Hole Color Setup

- i. To execute Hole color setup, select Hole color setup in SpeedWorks Advanced tap



- ii. Color setup screen has been popup as shown below.

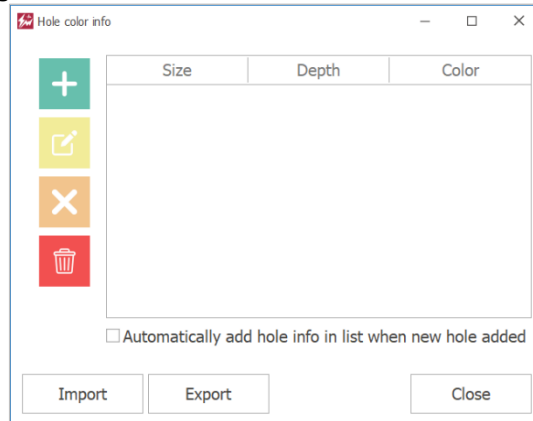


- ① **Hole Color List:** Paired hole size and hole color are displayed.
- ② **Add:** Users can add hole size and color.
- ③ **Edit:** Users can modify hole color by selecting item in hole color list. The tool is activated only when an item is selected.
- ④ **Delete:** Users can delete item by selecting item from hole color list
- ⑤ **Delete all:** Delete whole items from hole color list.
- ⑥ **Automatically add hole info in list when new hole added:** This is a function to create a list of hole sizes and colors more conveniently. When a hole is created, the size of the hole is automatically recognized, and the list is automatically added with a random color.

- ⑦ **Import:** Users can import color list that exported from other PC. It helps standardize in-house forms.
- ⑧ **Export:** Current set hole size and color list can export by txt file format.

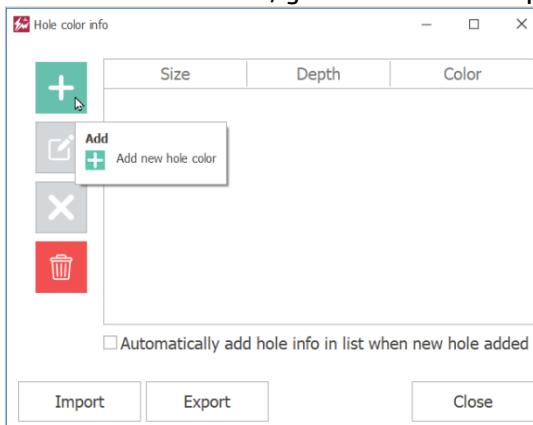
iii. If there is no work to set the hole color, the initial state is displayed in the form of an empty list.

- ⌚ If you export as hole color setting through hole type analysis, the hole color list will be automatically added.

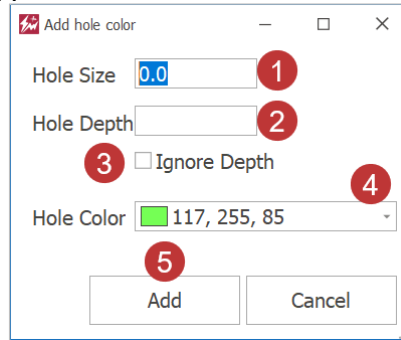


iv. To add a new hole color, select  (Add) button.

- ⌚ If you put mouse cursor on the button, you can check tooltip.



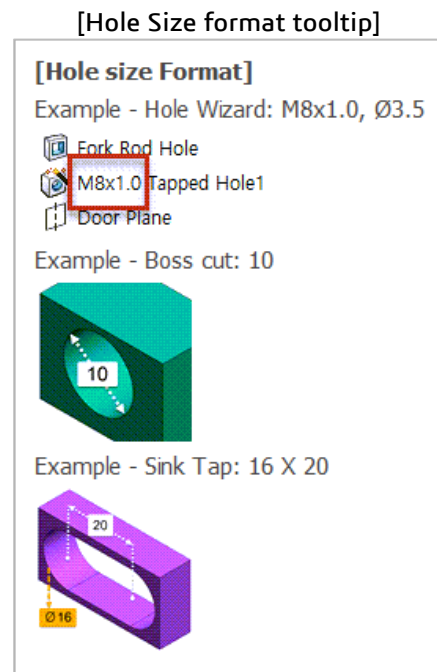
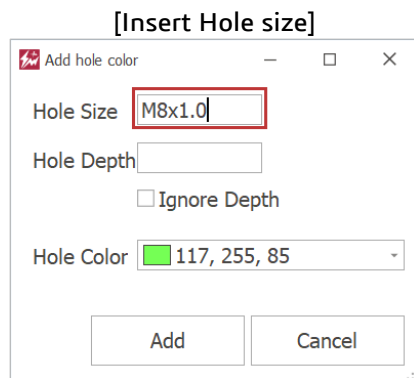
- v. The Add Hole Color window appears as shown below.



- ① **Hole Size:** When applying hole color, it based on diameter of hole.
- ② **Hole Depth:** If the same hole size but depth is different, the hole color display can be subdivided according to the depth of the hole.
- ③ **Ignore Depth:** Users can specify hole color with only hole diameter.
- ④ **Hole Color:** It is a color which user selected.
- ⑤ **Add:** Users add hole information to hole color list.

- vi. Insert hole information to specify hole color.

- ⚠ Hole size format will be appeared by tooltip when hover mouse cursor on the text box.



- vii. For holes with the same hole size but different depths, users can define the hole color display. Users can classify by depth by entering a hole depth value, or select the input criterion for hole color only by hole size through the 'Ignore depth' checkbox.

⚠ If 'Ignore Depth' are checked, textbox will be inactivated.

**[Insert hole depth]**

**[Ignore depth]**

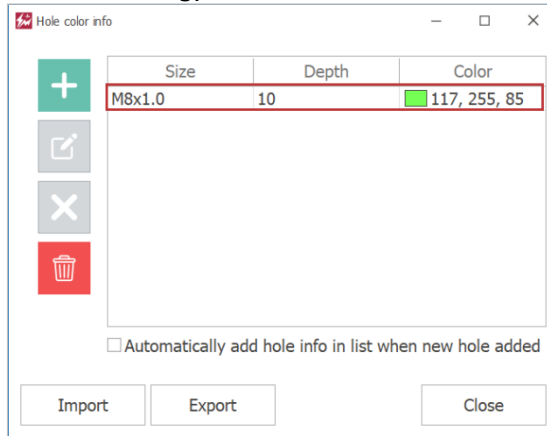
- viii. Users can select the color value users want to give through the color picker.


⚠ When the hole addition is completed, the color value is automatically changed to add a new hole color.

- ix. After all hole information insert, select 'Add' button.



⚠ When addition is completed, users can add new hole type.

- x. Users can check that a new hole color type has been added to the hole color list as follows.

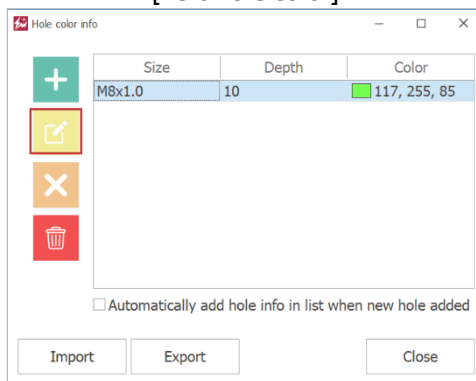


- xi. If users want to edit the hole color type, select an item in the hole color list and click  (Edit) to edit it.

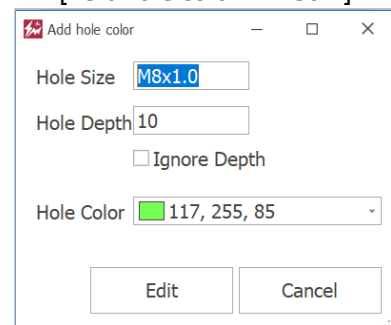
 It is possible to edit double-click an item.


 If there is no selected item, edit tool will be inactivated .

[Edit hole color]





[Edit hole color window]

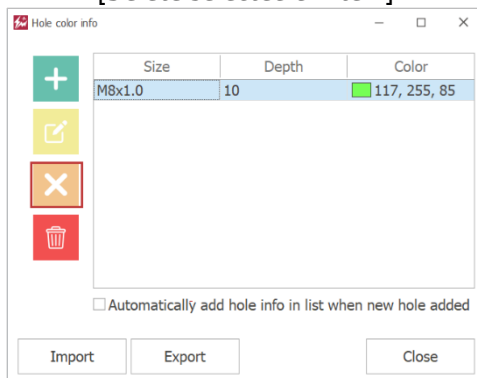


- xii. If users want to delete the entered hole color list, users can delete it by selecting it and clicking  (Delete Selection).

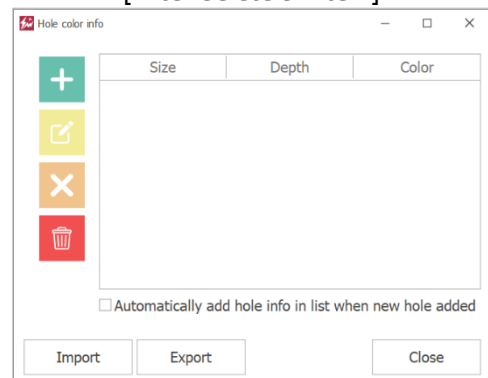
 Multi-selection deletion is possible, and deletion is possible with the Delete key.

 If there is no selected item, delete tool will be inactivated .

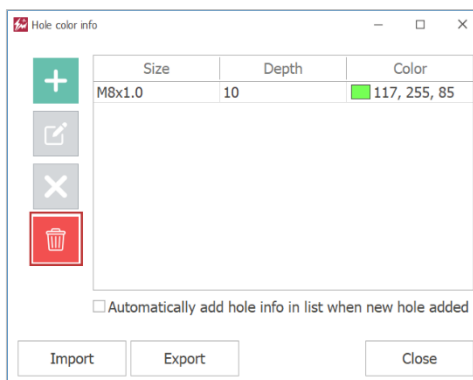
[Delete selected an item]



[After delete an item]

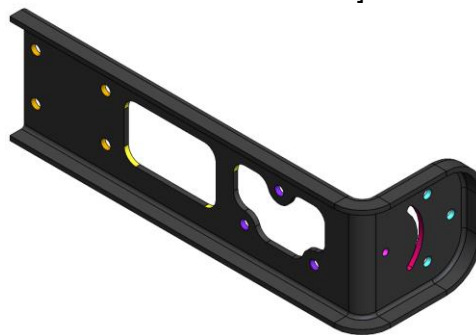
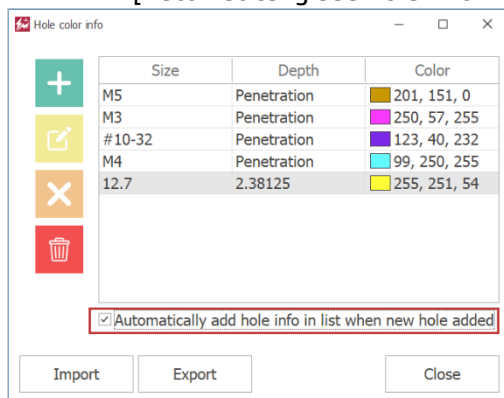


- xiii. If users want to delete all items in the hole color list, users can delete them in bulk using the (Delete All) tool.

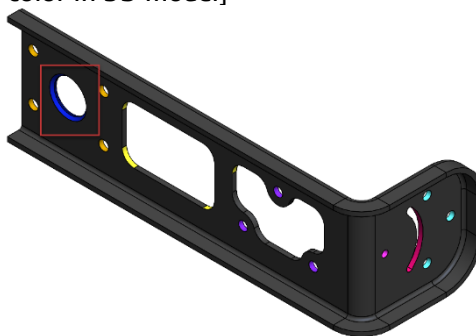
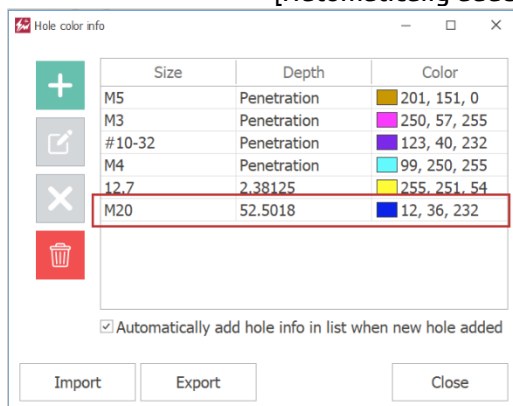


- xiv. If users activate "Automatically add hole info in list when new hole added", automatically hole type added on hole color list when every new hole created.

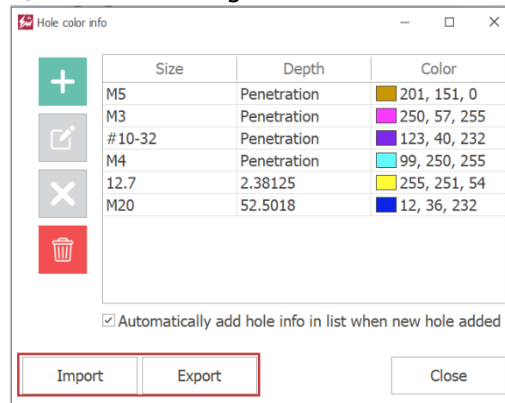
[Automatically add hole info in list when new hole added Activated]



[Automatically added hole color in 3D model]

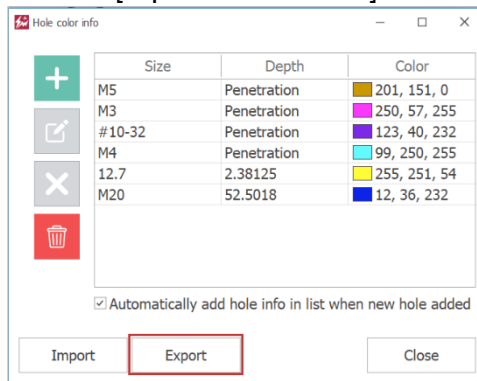


- xv. Hole color list is can share to other users. By sharing the entered hole color list through the import and export functions, users can manage common hole colors within the company.



- xvi. By selecting the Export button, users can save the hole color list file as a text file. Users can pass this file on to another user and read it.

[Export hole color list]



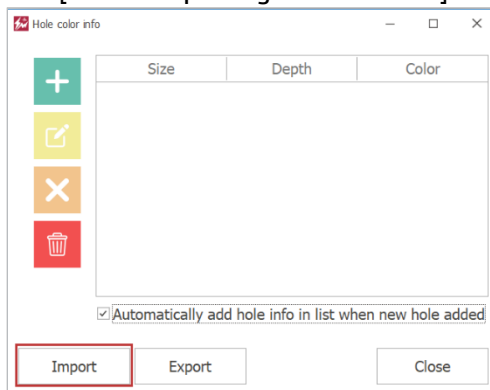
[Exported text file]



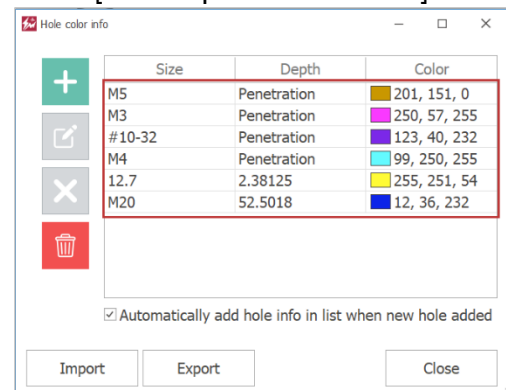
HoleColorData.txt

- xvii. Users can import hole color information by importing the hole color list file as follows.

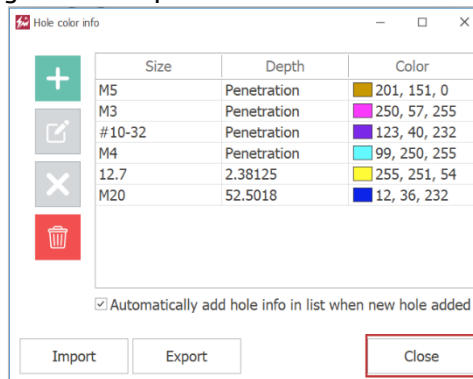
[Before importing hole color list]



[After import hole color list]



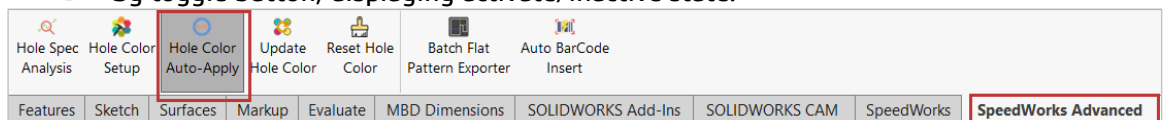
- xviii. When the hole color setting tool is closed, the entered hole color list information is automatically saved in the user's PC. Users can reuse the saved hole color information later.
- ⓘ This set information is saved in a separate setting file when the program is closed without saving or exporting separately. (C:\Users\ {User} \AppData\Roaming\SolidIT\ SpeedWorks\Addin\HoleColorMgr\ ColorConf.txt)



## E. Using Hole Color Auto-Apply tool

- i. To activate Hole Color Auto-Apply, select 'Hole Color Auto-Apply' in SpeedWorks Advanced tab.

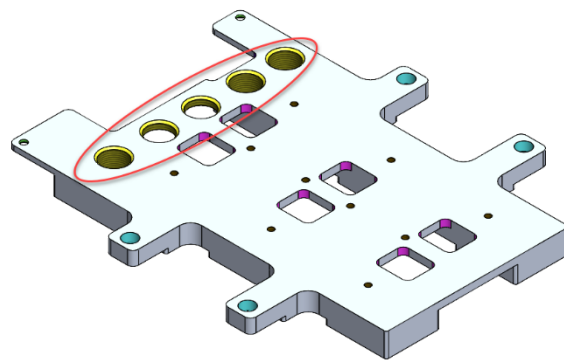
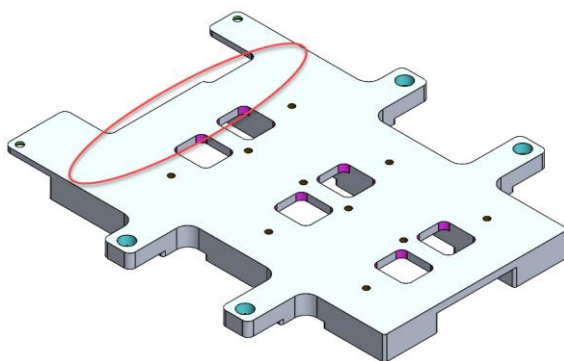
ⓘ By toggle button, displaying activate/inactive state.



- ii. If hole color auto-apply function is activated, specified color are automatically apply into hole when hole created.

[ Activated Auto-Apply – Before Hole Created]

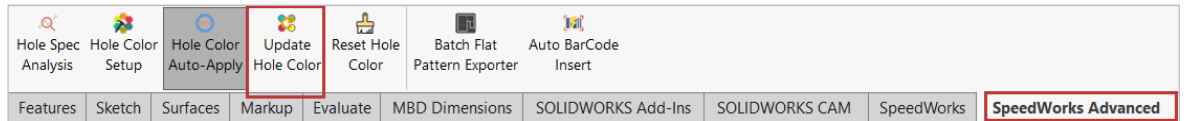
[Activated Auto-Apply – After Hole Created]





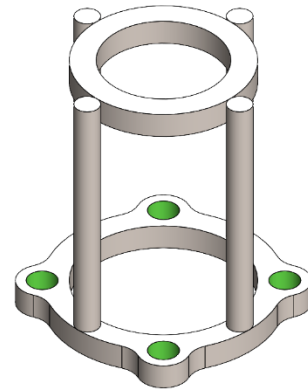
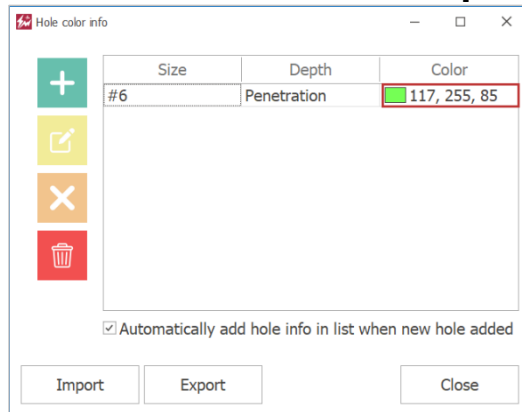
## F. Using update hole color tool

- i. To update hole color setting in hole color list, select 'Update Hole Color' in SpeedWorks Advanced tab.

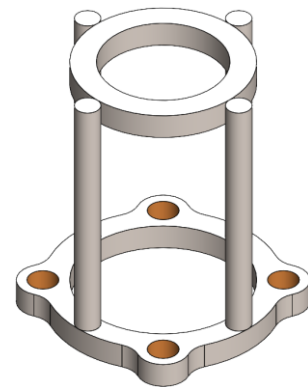
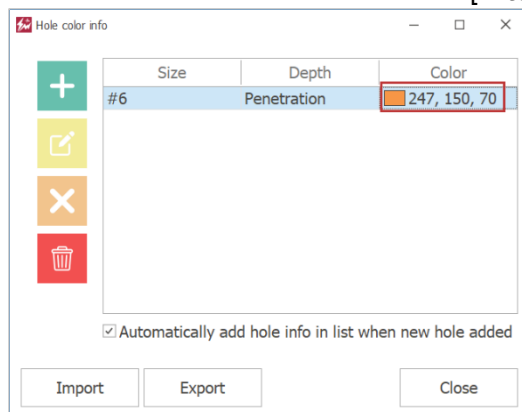


- ii. Users can check the hole color has been changed as follows.

[Before Update]

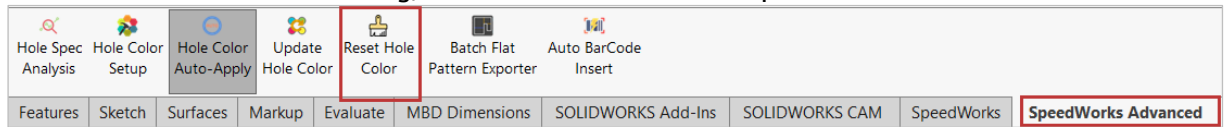


[After Update]

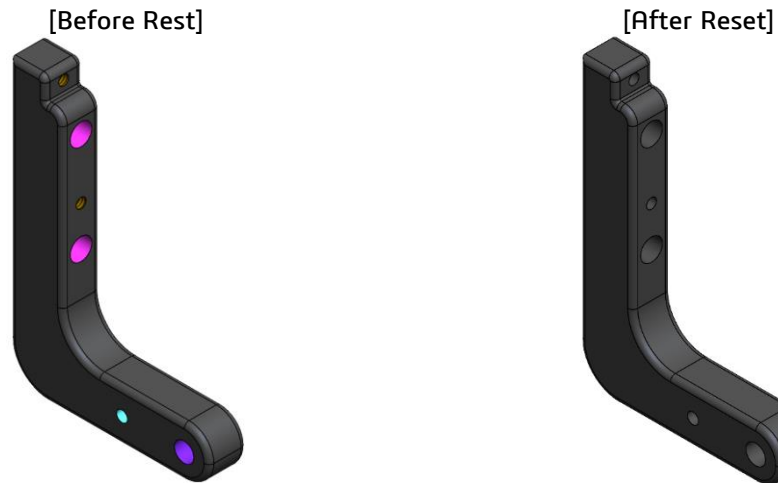


## G. Using Reset hole color tool

- i. To reset current hole color setting, select 'Reset hole color' in SpeedWorks Advanced tool.



- ii. Users can check all of hole color has been removed.



## 2. Auto Faces Split

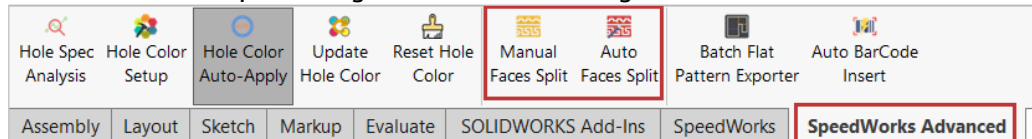
Auto Faces Split is a function that performing split line in order to increase the accuracy of analysis of contact parts. Creating split line on the existing contact surface is not an easy process, but through this function, even beginners can easily perform dividing on the model surface.

### A. Auto Faces Split Toolbar

Auto Faces Split support various tool, help user create split lines for analyzing.

#### i. SpeedWorks Advanced – Auto Faces Split toolbar

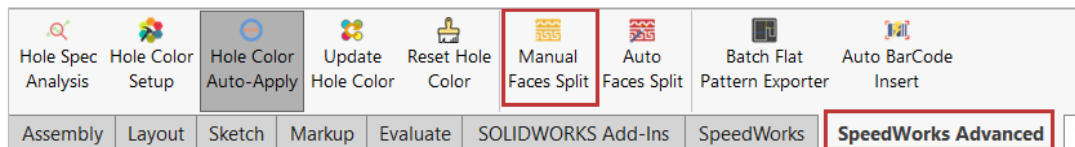
Auto Faces Split is only available in Assembly mode.



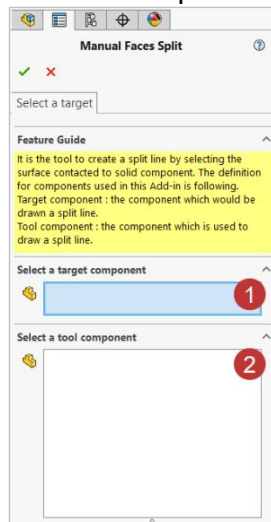
- ① **Manual Face Split:** Create split face manually. By specifying the target part and the part that making split line, create face split on target part.
- ② **Auto Face Split:** Create faces split automatically. By multi-selecting the parts to be split, a split face is automatically created on the face of the parts in contact with each other.

### B. Using Manual Faces Split

- i. To split a face on a single part, select the 'Manual Faces split' tool in the SpeedWorks Advanced tab.



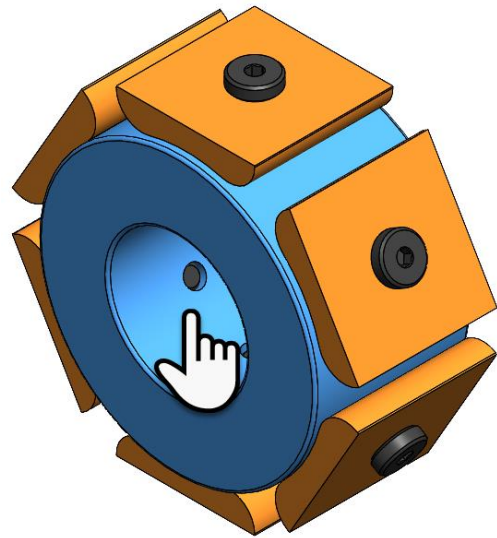
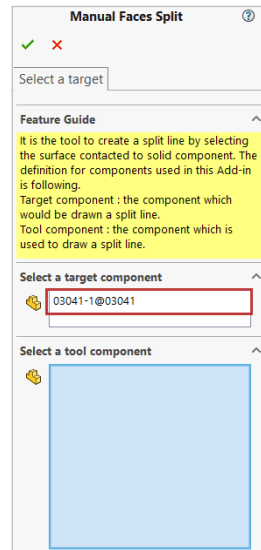
- ii. Manual Faces Split is displayed on PropertyManager as shown below.



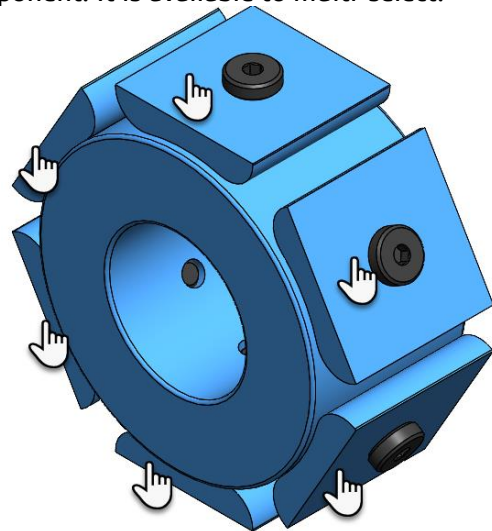
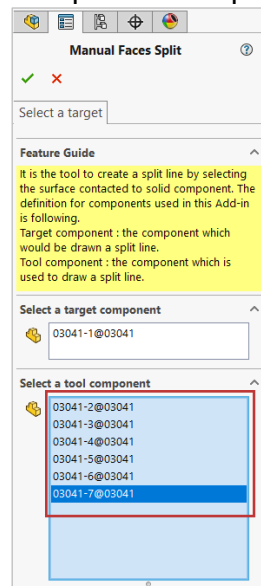
- ① **Select a target component:** Select a component that divided by contacting face.  
(It is only available to select a single component, automatically change to divide component selection mode after a component selected.)
- ② **Select a tool component:** Select components for dividing target component. It is available multiselect.

- iii. To generate split face on component, select components when the target component selection is activated.

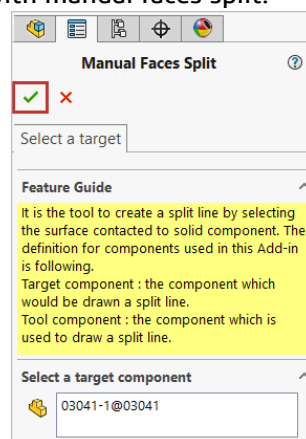
 Users are able to select a model on 3DView or flyout toolbar.



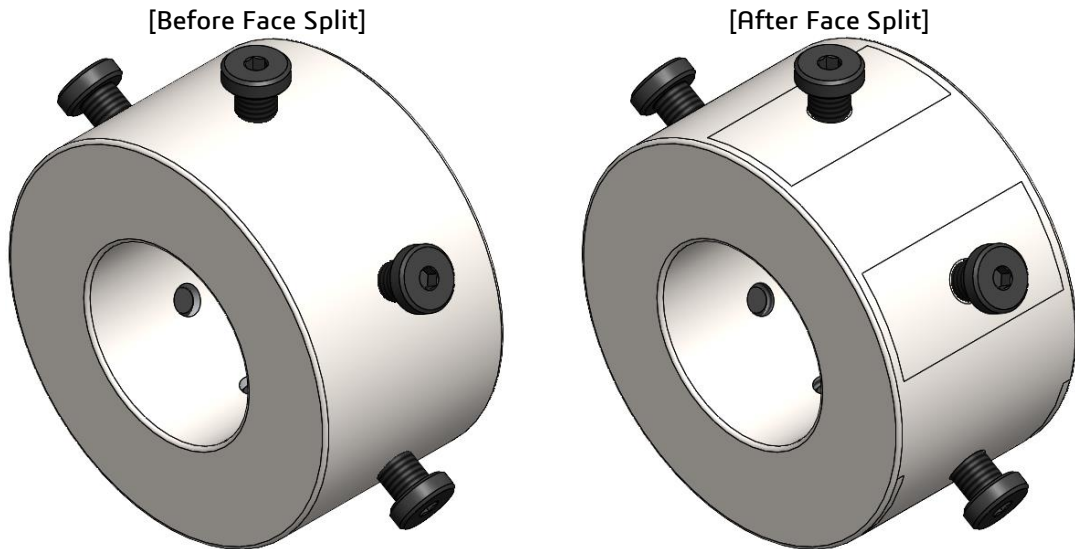
- iv. Users select components for splitting target component. It is available to multi-select.



- v. Select the OK button to proceed with manual faces split.

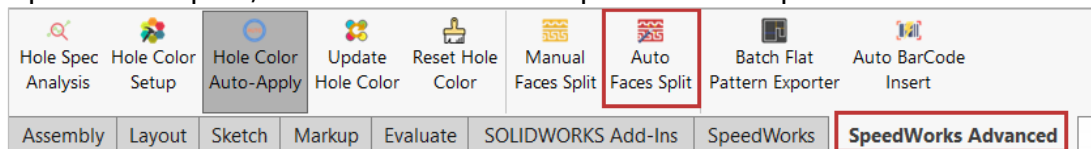


- vi. Users can see that the face splitting is complete as follows.

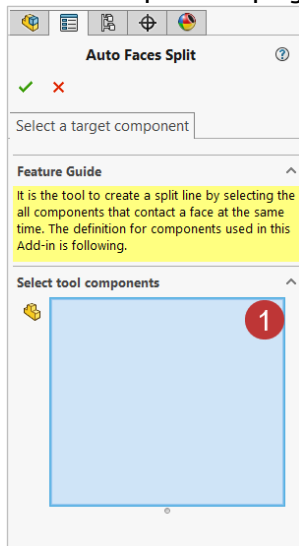


### C. Using Auto Faces Split

- i. To split a face on parts, select the 'Manual Faces split' tool in the SpeedWorks Advanced tab.



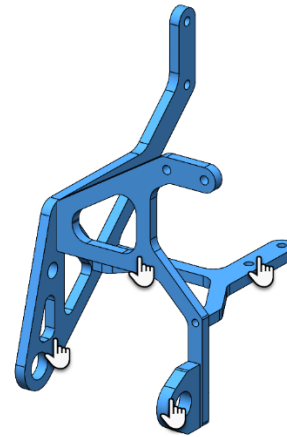
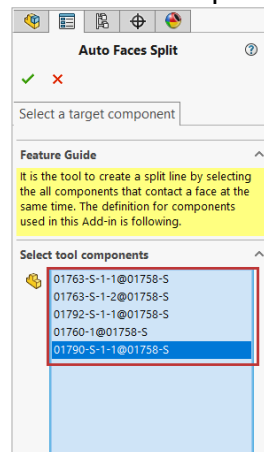
- ii. Auto Faces Split is displayed on PropertyManager as shown below.



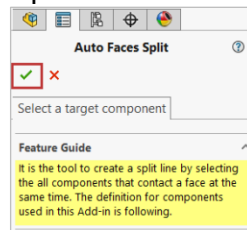
- ① **Select tool components:** Select 2 or more parts whose contact faces are to be split.

- iii. Batch select to add all parts to create a split face.

⚠ Users can select components at 3DView or flyout tool.

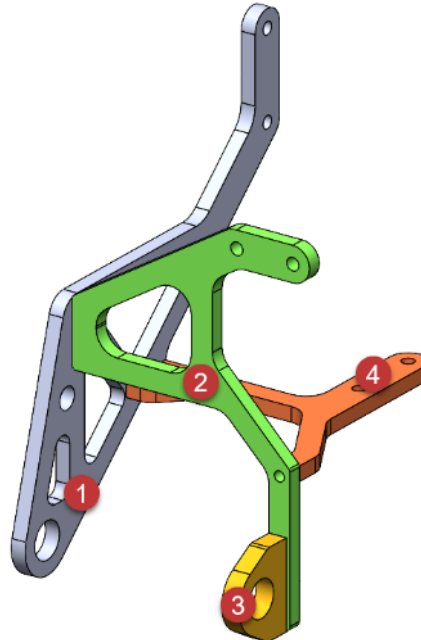


- iv. Click OK button to proceed auto faces split.

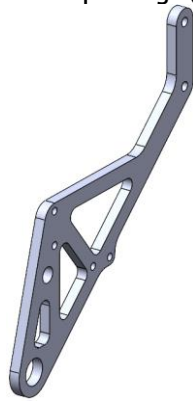


- v. Users can see that all of the selected parts are face split as follows.

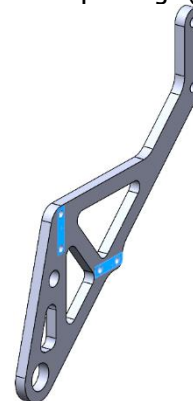
[Face split target components]



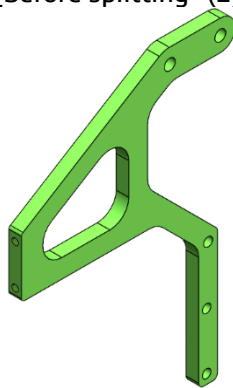
[Before splitting -(1)]



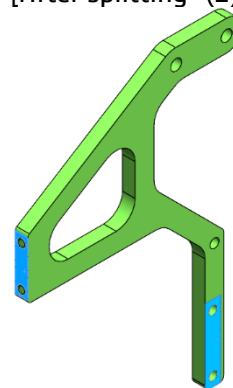
[After splitting -(1)]



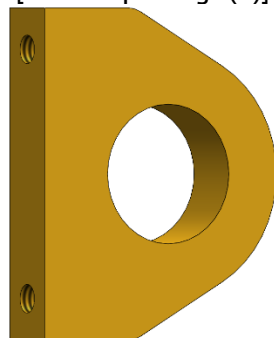
[Before splitting -(2)]



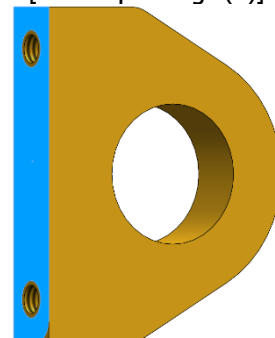
[After splitting -(2)]



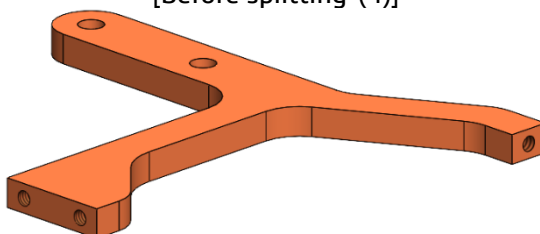
[Before splitting -(3)]



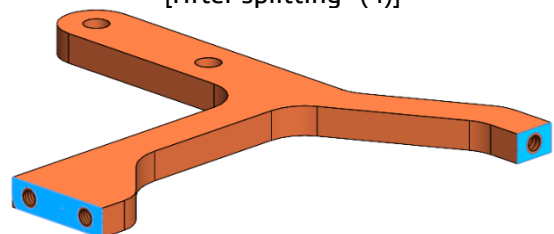
[After splitting -(3)]



[Before splitting-(4)]



[After splitting -(4)]



# V. Drawing

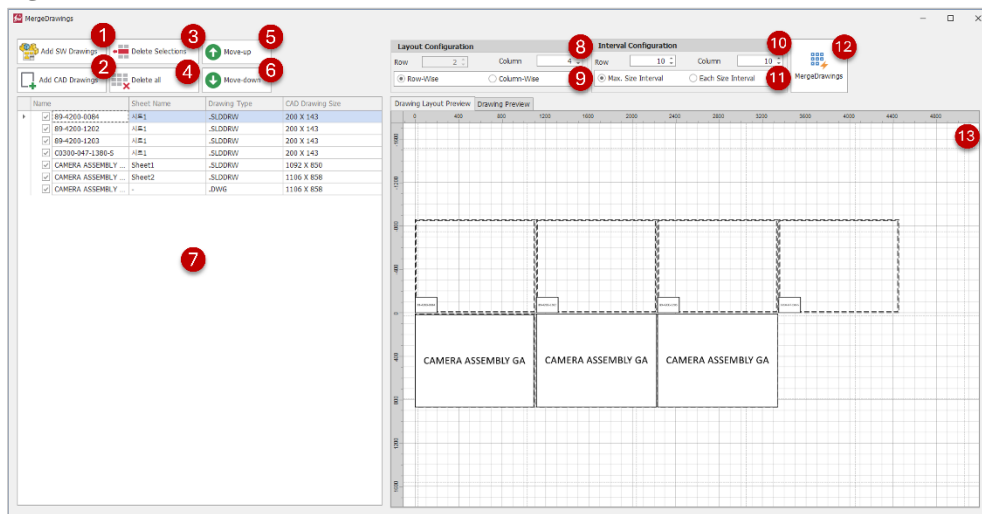
## 1. MergeDrawings

"MergeDrawings" is a program that can consolidate multiple drawing files into a single DWG file. Users can choose their desired drawing order, position arrangement, and set the spacing between them.

### A. User Interface

For designer convenience, it provides various features such as batch adding SOLIDWORKS 2D drawings, batch adding DWG/DXF, deleting the list, changing the list position, and defining arrangement criteria.

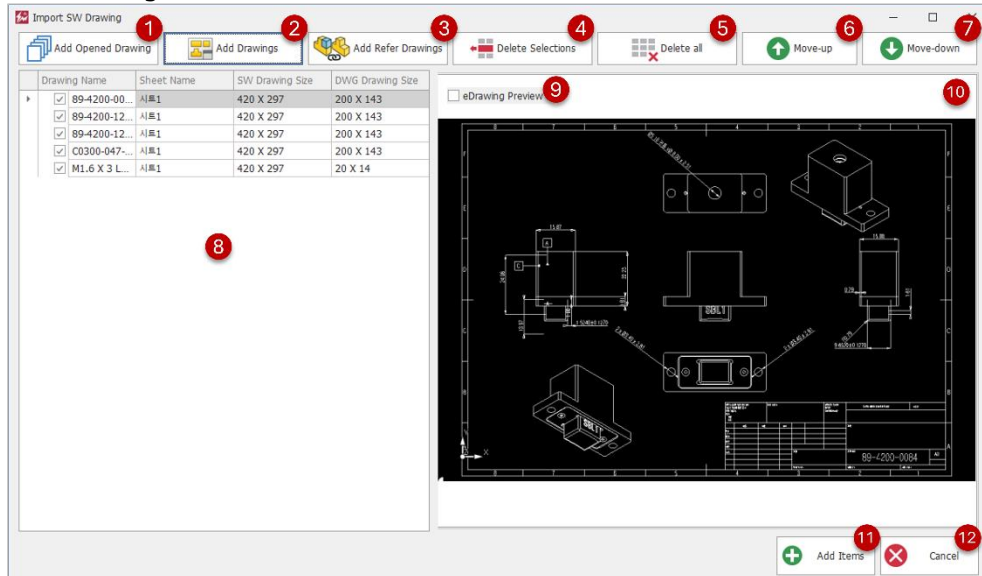
#### i. Main UI



- ① **Add SW Drawing:** Activates the window where you can add SOLIDWORKS 2D drawings.
- ② **ADD DWG/DXF:** Add files in DWG/DXF format to the list.
- ③ **Delete Selections:** Remove the selected item from the list.
- ④ **Delete All:** Delete all items in the list.
- ⑤ **Move Up:** Move selected item upward.
- ⑥ **Move Down:** Move selected item downward.
- ⑦ **Drawing List:** The list of SOLIDWORKS 2D drawings or DWG/DXF drawings is displayed.
- ⑧ **Row/column drawing layout settings:** Set the number of rows/columns and spacing.
- ⑨ **Column/Row Priority Settings:** Set the criteria for arranging drawings.
- ⑩ **Set spacing between columns/rows:** Set the spacing between drawings.
- ⑪ **Set the arrangement size spacing.":** Set the spacing for drawing arrangement criteria.
- ⑫ **MergeDrawings:** Creates one DWG file based on the set array.
- ⑬ **Preview:** A preview of the drawing layout is displayed.



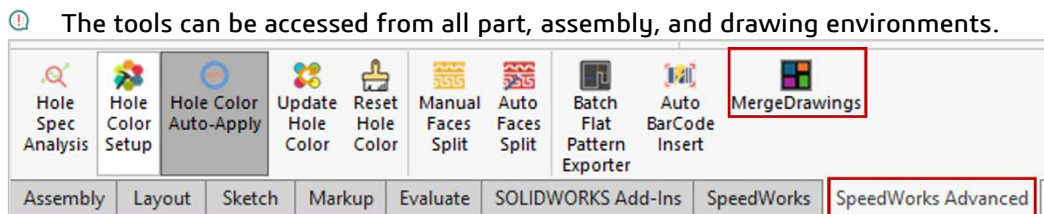
## ii. Add SW Drawing UI



- ① **Add Opened Drawing:** Add the drawing open in SOLIDWORKS to the list.
- ② **Add Drawings:** When selecting SOLIDWORKS 2D drawing files, it is added to the list.
- ③ **Add Refer Drawings:** When selecting assemblies or parts, referenced 2D drawings are added to the list.
- ④ **Delete Selections:** Delete selected items.
- ⑤ **Delete All:** Delete all items in the list.
- ⑥ **Move Up:** Move the selected item upward.
- ⑦ **Move Down:** Move the selected item downward.
- ⑧ **Drawing List:** The list of SOLIDWORKS 2D drawings is displayed.
- ⑨ **eDrawings Preview:** Enables preview of selected items in eDrawings.
- ⑩ **Drawing Preview:** The drawing of the selected item is expressed as an image
- ⑪ **Add Item:** The drawing list is added to the drawing list in the main window.
- ⑫ **Cancellation:** The added item will be deleted, and the window will close.

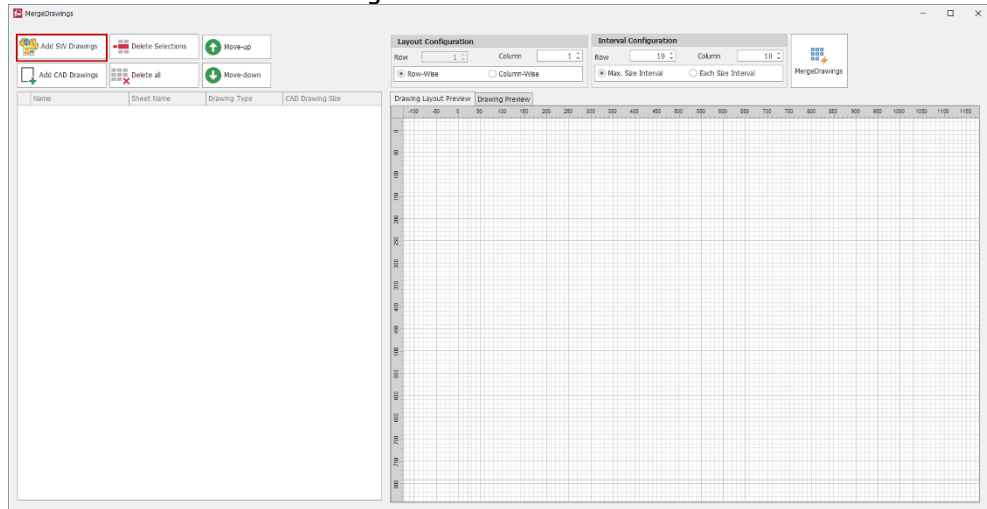
## B. Use of Tools

- ii. To run the barcode automatic insertion program, select the 'MergeDrawings' tool in the SpeedWorks Advanced tab.



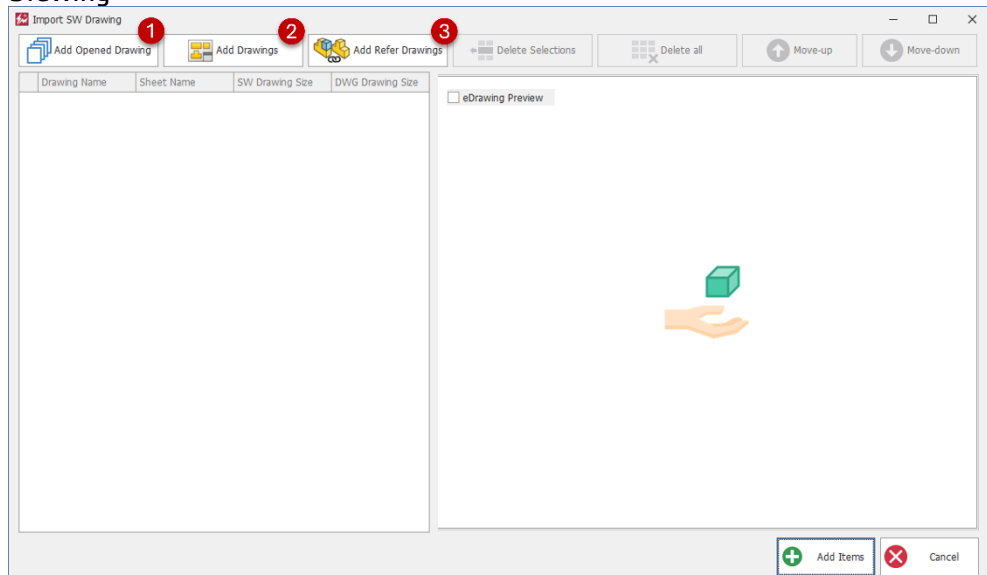
iii. Add SOLIDWORKS Drawing

Click the “Add the SW Drawing” button



iv. Select desired SOLIDWORKS drawing item method

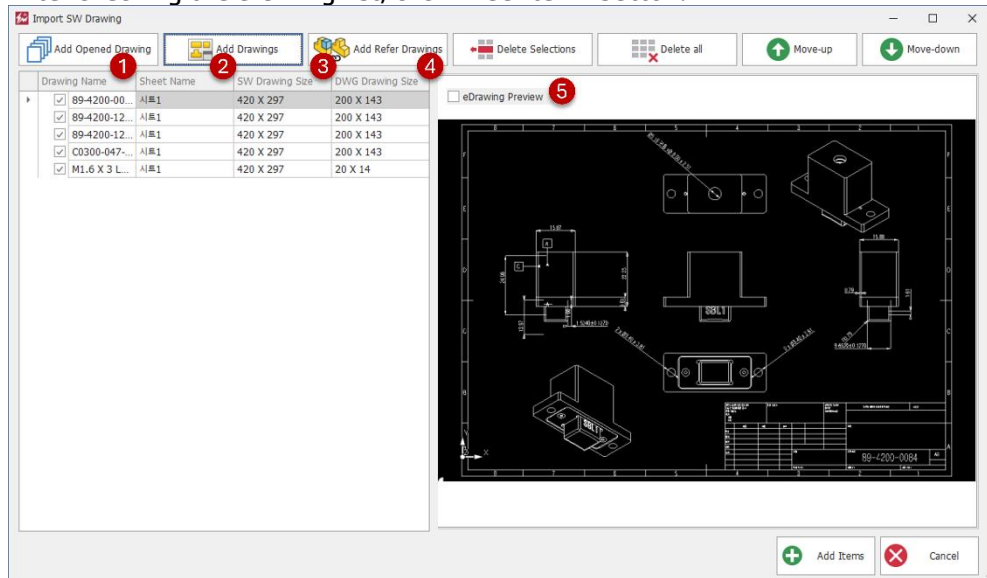
Select the desired method among Add Open Drawing, Add Drawing or Add Reference Drawing



- ① **Add Open Drawing:** Add the open SOLIDWORKS drawing to the list.
- ② **Add Drawing:** When selecting SOLIDWORKS 2D drawing files, it is added to the list.
- ③ **Add Reference Drawing:** When selecting assemblies or parts, referenced 2D drawings are added to the list.

v. Check added drawing information

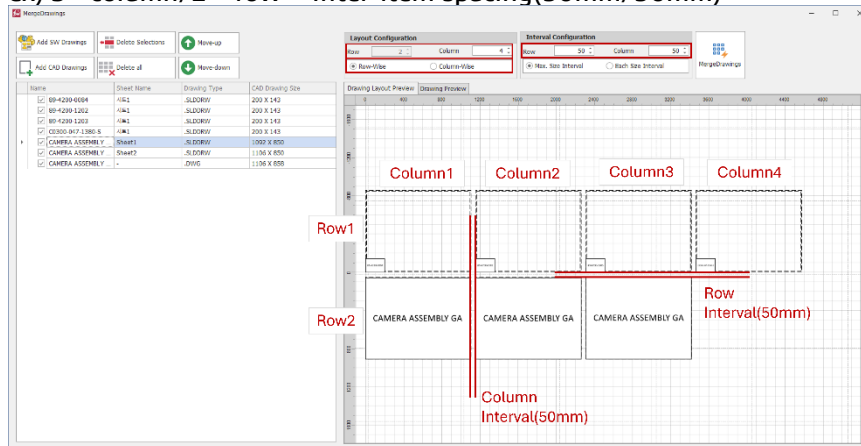
- ① You can check each drawing Information as follows
- ② After checking the drawing list, click "Add Item" button.



- ① SOLIDWORKS drawing name is displayed.
- ② **Sheet Name:** The sheet name of SOLIDWORKS 2D drawing is displayed.
- ③ **SW Drawing Size:** The drawing size of the SOLIDWORKS 2D drawing is displayed.
- ④ **DWG Drawing Size:** When converting to DWG, the drawing size is displayed. (1:1 output)
- ⑤ **eDrawing Preview:** The drawing of the selected item is displayed in preview format.

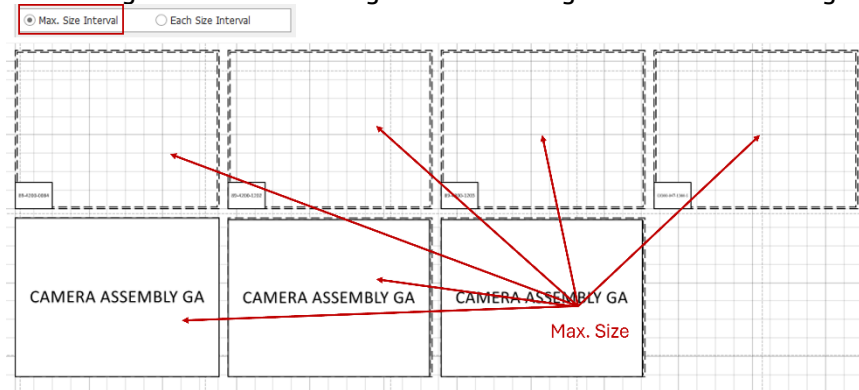
vi. Drawing Arrangement Settings

- ① Sets the arrangement criteria for the checked items among the added list..
- ② ex) 3<sup>rd</sup> column/2<sup>nd</sup> row – Inter-item spacing(50mm/50mm)



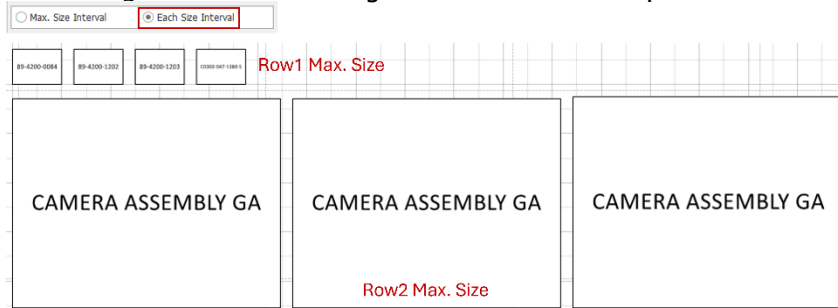
vii. Max. Drawing Size Array

It is arranged based on the largest size drawing in the entire drawing list.



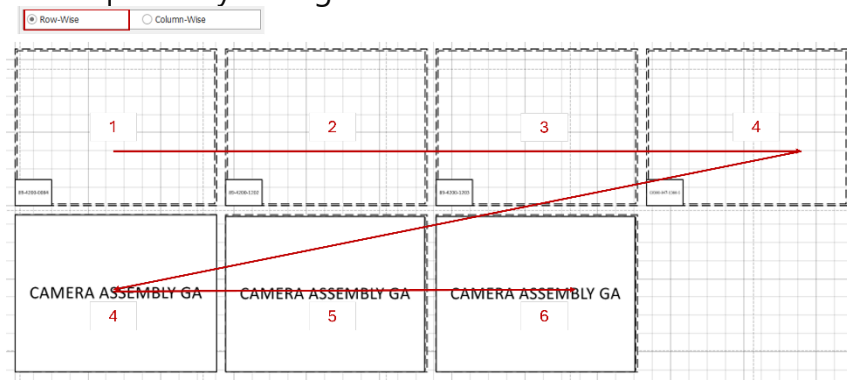
viii. Column/Row – based Arrangement

It is arranged based on the largest size within the respective rows.



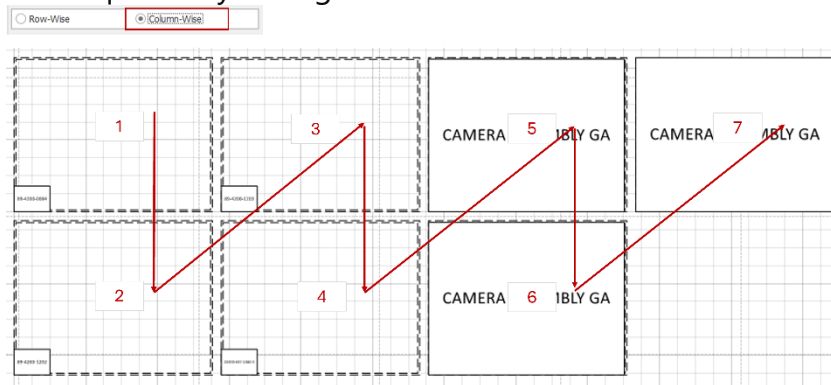
ix. Row-wise

It is sequentially arranged based on columns.



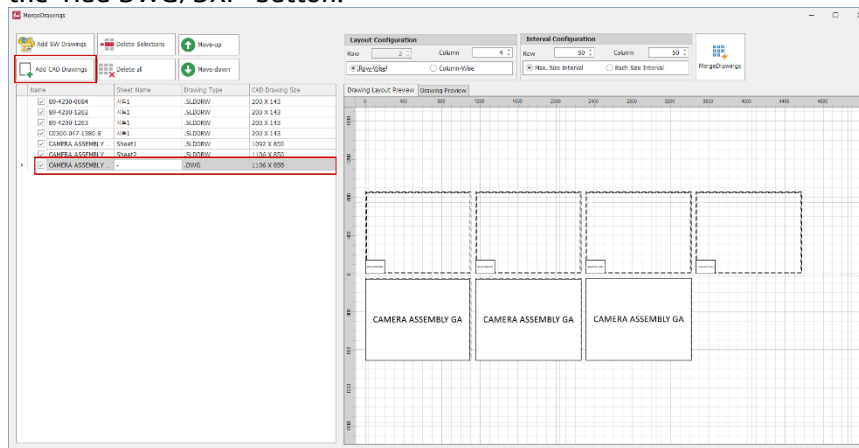
x. Column-wise

It is sequentially arranged based on rows.



xi. Add DWG/DXF Drawings

When adding drawings in DWG/DXF format other than SOLIDWORKS drawings, click the 'Add DWG/DXF' button.



- ① **Add DWG/DXF:** When selecting files in DWG/DXF format, they will be added to the list.
- ② **Check Drawing Information:** The name, excluding sheet name, drawing type, and drawing size are displayed.

xii. Run MergeDrawings

"Click the "Mergedrawings" button and select the desired file name to create a merged drawing.

