# AI-CUT PLUG-IN FOR ADOBE ILLUSTRATOR

## How to get started

02 - 2025 |

KONGSBERG
Precision Cutting Systems

# CONTENTS

1 **Preface** ..... **3**

2 **Change record** ..... **4**

3 **Using ai-cut** ..... **5**

3.1. Locating the provided plug-in tools ..... 5
3.2. Inserting registration marks ..... 6
3.2.1. Inserting registration marks manually ..... 6
3.2.2. Setting registration mark appearance and action parameters ..... 6
3.2.2.1 Appearance ..... 6
3.2.2.2 Action ..... 7
3.2.3. Application ..... 8
3.3. Create Line Type Layers ..... 8
3.4. Assign Cut Material ..... 10
3.5. QR / USC ..... 12
3.6. Outputting files ..... 13
3.6.1. Saving as a print file ..... 13
3.6.2. Saving as a cut file ..... 14

4 **ai-cut Preferences** ..... **15**

5 **Troubleshooting** ..... **17**

# 1. PREFACE

**ai-cut 2025.1**

ai-cut is a plug-in for Adobe Illustrator. It includes unique features that simplify the preparation of jobs that will be cut on Kongsberg cutting tables controlled with i-cut Production Console.

This version supports:

- Adobe Illustrator 2025 (v29), 2024 (v28) and 2023 (v27)
- MacOS (10.15 or higher) and Windows (10 and higher)
- The MacOS version supports both Apple Silicon and Intel processors

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# 2. CHANGE RECORD

| Date<br>dd.mm.yyyy | By | Description |
|---|---|---|
| 30.11.2021 | DHO | First issue |
| 19.01.2022 | DHO | Misc. updates |
| 25.11.2022 | DHO | Updates for coming version of Adobe Illustrator |
| 04.04.2024 | DHO | New function "Assign Cut Material" and misc |
| 11.02.2025 | DHO | Misc. updates |
| 17.02.2025 | DHO | Misc. updates |

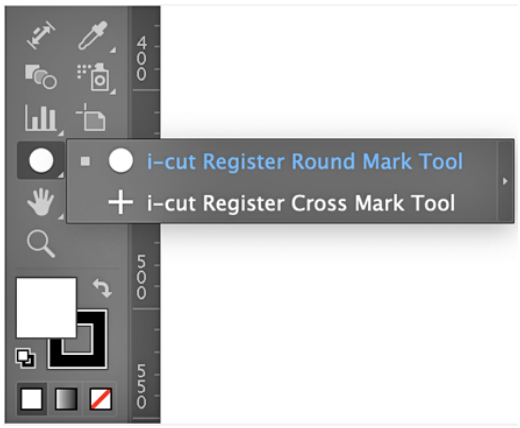
# 3. USING AI-CUT

The ai-cut plug-in is a tool to help designers prepare jobs for Kongsberg cutting tables controlled with i-cut Production Console (iPC).

> **NOTE:** The terms **registration mark** and **regmark** have exactly the same meaning. **Mark** is sometimes also used, with the same meaning.

## 3.1. Locating the provided plug-in tools

The free plugin for Adobe Illustrator can be downloaded from https://www.kongsbergsystems.com/en/resources/software/ai-cut.




The **i-cut Register Mark** tool works in exactly the same manner as any other button on the toolbar. Left-click and hold expands the button, while clicking the arrow to the right of the expanded button creates a floating palette.
Double-clicking the button opens the **i-cut Register Marks** window, which contains options related to the tool.
In ***Window*** > ***Kongsberg*** > ***ai-cut***, you find the remaining ai-cut tools: **Create Line Type Layers**, **Assign Cut Material**, QR / USC and **Add i-cut Register Marks** (same window as accessed by double-clicking the toolbar button).

# 3.2. Inserting registration marks

## 3.2.1. Inserting registration marks manually

Your mouse pointer will change appearance to reflect your tool selection.

> **NOTE:** Turning on Illustrator's **Use Precise Cursors** option will produce a crosshair pointer instead of a representation of the selected regmark tool.

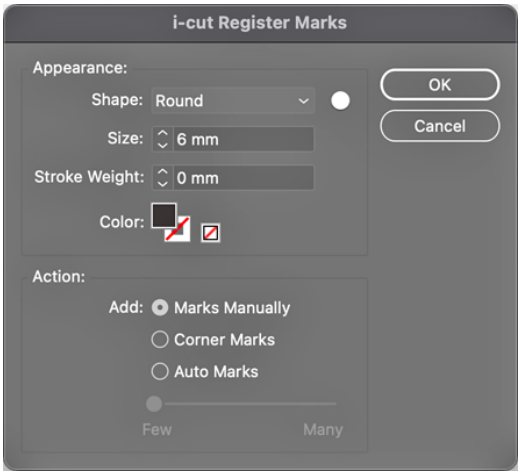
Clicking anywhere in your work area will produce an i-cut regmark, which is automatically placed into a newly generated Regmark layer.
Select the round or cross regmark from the toolbar tool and notice the difference when inserting the regmarks.
Once regmarks are inserted, they may be moved, deleted or modified just like any other curve in Illustrator.

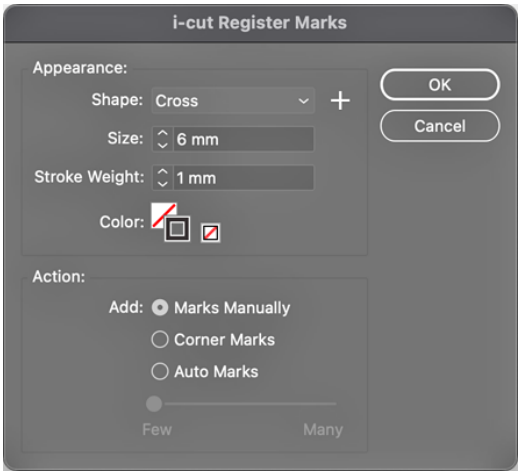
Typical use of the various registration marks is:

- **Round regmarks** are used for iCUT Vision camera and iCamera
- **Cross shaped regmarks** are used for ARS camera and iCamera

## 3.2.2. Setting registration mark appearance and action parameters

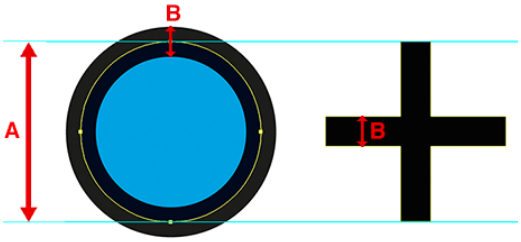
To set registration mark appearance parameters, open the i-cut Register Marks window by either double-clicking the toolbar button, or by selecting ***Window*** > ***Kongsberg*** > ***ai-cut*** > ***Add i-cut Register Marks***. The **Appearance** section at the top of the window provides several parameters that dictate regmark appearance. The **Action** section of the window defines the action that will be taken when exiting the i-cut Register Marks window.




### 3.2.2.1 Appearance

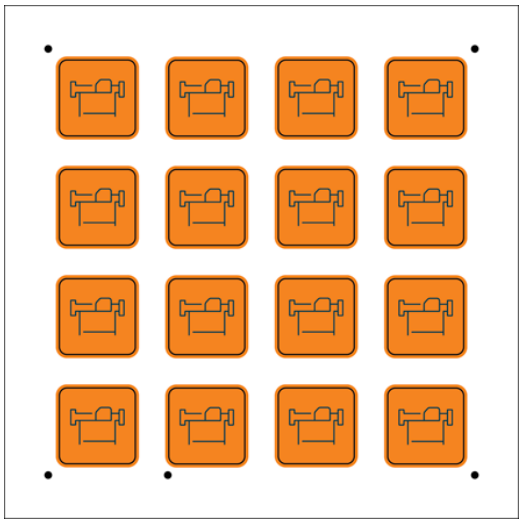
The selection of **Shape** (Round or Cross) coincides with the two types of regmarks available from the toolbar. Notice when you select one type or another and exit the window, the toolbar button changes accordingly.
Define the **Size** and **Stroke Weight** of the shape.



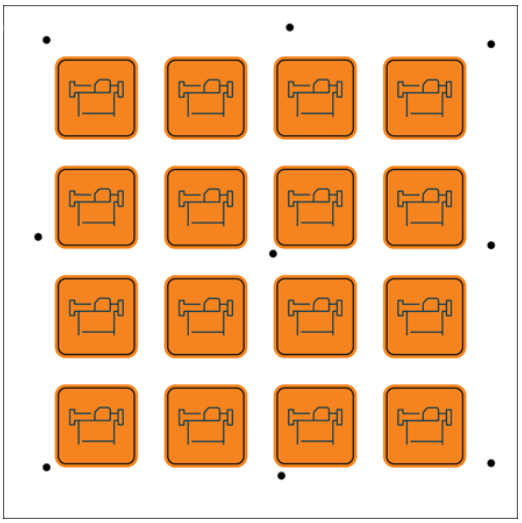

You can define the Fill and Stroke Color the same way you do in Adobe Illustrator.

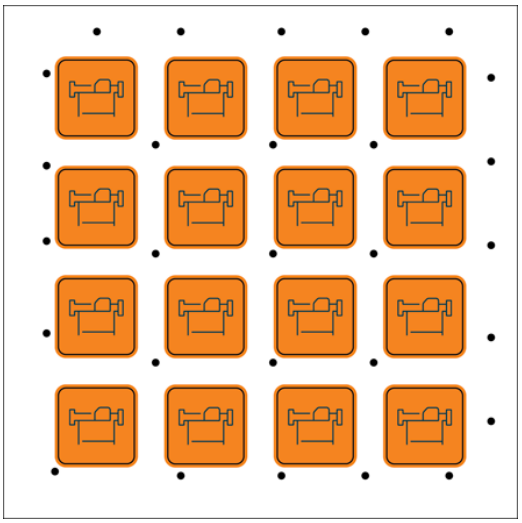
### 3.2.2.2 Action

Selecting **Add Marks Manually** will apply all changes made to appearance parameters to the i-cut Register Mark manual insertion tool.
If **Add Corner Marks** is selected, ai-cut will generate a single set of corner marks around the entire contents of the file. It will automatically generate two regmarks in the main zero reference point on the table to help avoid confusion when cutting symmetric jobs.



**Add Auto Marks** intelligently places multiple regmarks within the limits of the Illustrator Artboard (defined in the document setup). Exact positions of the regmarks are determined relative to the visible contents of the file. The number of regmarks is set using the **Quantity** slider, which becomes available as soon as the option is selected. The exact number of regmarks depends on the size of the Artboard and the visible contents of the file. Moving the slider to the left decreases the number of regmarks, while moving it to the right increases the number. The example underneath shows the result with the slider on the left and on the right.



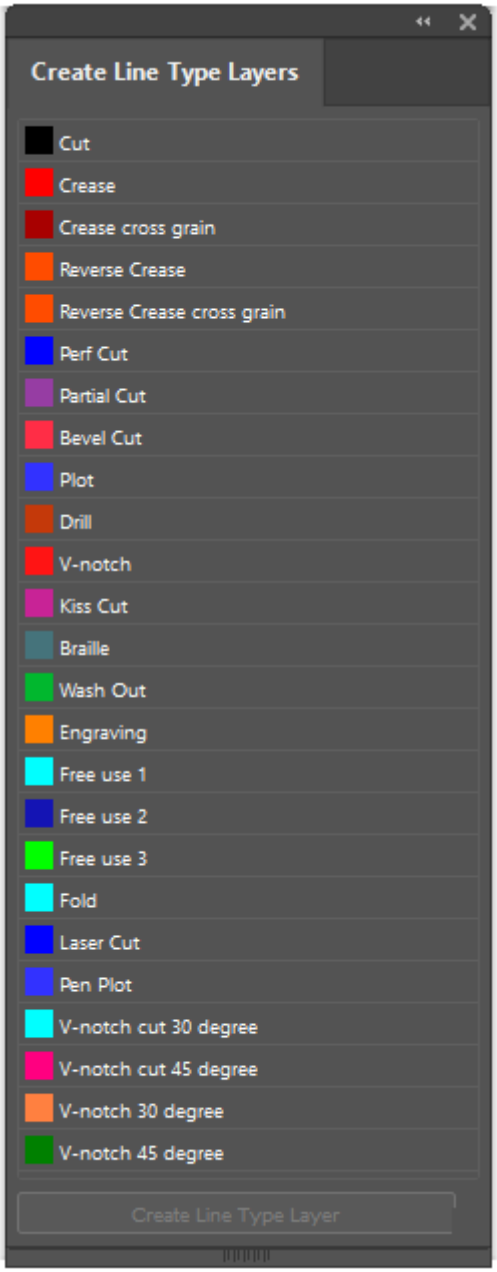


### 3.2.3. Application

As mentioned above, regmarks are inserted based on the visible contents of the file. That means that it if there are objects in the file which you do not want ai-cut to consider when placing regmarks, you should remove them from the file or hide them from the Layers palette.
Regmarks are automatically placed in a new layer named Regmark. As long as they remain in that layer, each time you run **Add Auto Marks**, ai-cut will remove regmarks in the layer and replace them with new regmarks reflecting your quantity selection. That means you do not have to remove the regmarks manually if you would like to change the quantity, or have made any other changes to your file that require re-insertion of regmarks.
Raster Images and Clipping paths are enclosed by a bounding box. Although these types of objects may contain transparent space, they are treated as filled spaces by ai-cut. Therefore, it is a good idea to insert regmarks according to your vector cut paths, and not your final print objects. To do this, simply hide the layers containing your print data before executing **Add Auto Marks**.

## 3.3. Create Line Type Layers

To generate predefined layers and assign the corresponding line types to selected objects, open the **Create Line Type Layers** window by selecting ***Window*** > ***Kongsberg*** > ***ai-cut*** > ***Create Line Type Layers***.




The window shows a list of available Line Type layers. The list of available line types is defined in the ai-cut Preferences. See ai-cut Preferences on page 15

Placing your artwork intended for finishing on an i-cut system, into layers with these predefined names will allow iPC users to take full advantage of the "material is key" concept utilizing tooling presets. This will reduce the job setup time.

To move artwork to one of these Line Type Layers, select the artwork, select the desired Line Type Layer, and click the **Move Selection to Line Type Layer** button.

- Without any artwork selected, select a Line Type Layers in the list and click **Create Line Type Layer** to simply create the Line Type Layer. You can select multiple Line Type Layers in the list by holding the command key (Mac) or Control key (Windows) to create multiple Line Type Layers at once.
- Make a selection and click one of the Line Type Layers in the list to apply the line type to the selected objects.
  - The selected objects will be set to overprint, with no fill and a 1 point stroke.

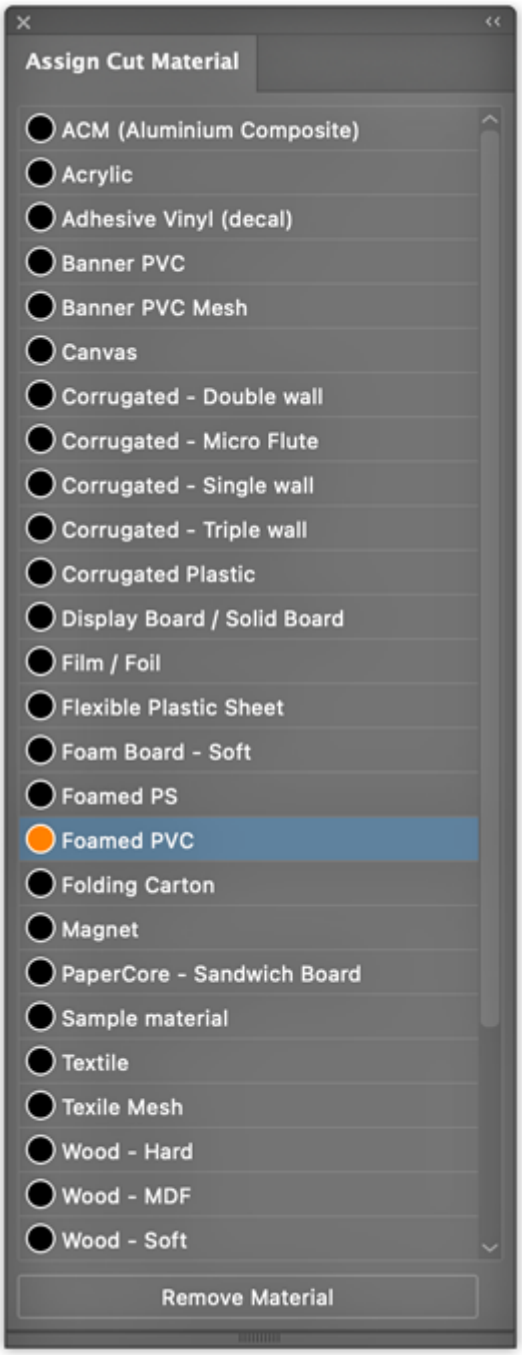
  - The color of the stroke will be a spot color, with the Line Type as name, e.g. "Partial Cut".
  - The spot color will be a technical ink.
- If the objects you have selected already have a line type applied, the corresponding Line Type Layers will be selected in the list. Click **Move Selection to Line Type Layer** to move each object to the layer corresponding with its line type. If the Line Type Layer doesn't exist yet, it will be created.

The **Move Selection to Line Type Layer** only supports path or compound path objects. Unsupported objects, such as images, as well as objects in a PowerLayout or Dynamic Marks layer, will not be modified, and a warning will be shown.

If no artwork is selected, the button will change to **Create Line Type Layer**. This will simply create the layer for the currently selected Line Type. You can manually move objects to this layer using the regular Adobe Illustrator tools.

## 3.4. Assign Cut Material

To add a predefined material name to the XMP metadata of the PDF files you intend to output, open the Assign Cut Material window by selecting Window > Kongsberg > ai-cut > Assign Cut Material.



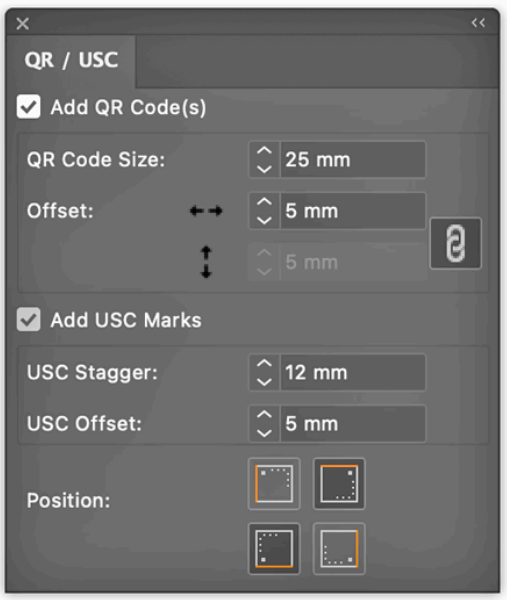

The window shows a list of available materials. The list of available materials is defined in the ai-cut Preferences. See ai-cut Preferences on page 15 .
Adding a material to the PDF cut file you intend to send to iPC will automate the job setup process for your iPC users. The "material is key" concept applies tooling presets to cut files based on material names.

To assign a material, select the desired material, then click the Assign Material button.

- The currently assigned material is indicated by the orange dot
- To remove the assigned material, select it, then click the Remove Material button
- Only one material can be assigned to the file

## 3.5. QR / USC

To add QR codes and/or underside camera regmarks to the job, open the QR / USC window by selecting Window > Kongsberg > ai-cut > QR / USC.




To add QR Codes, activate the QR Code(s) checkbox.

- QR Code Size: Adjust the QR code size from 20 mm to 35 mm.
- Offset: Offset the QR code position(s) from 2 mm to 100 mm relative to their respective Art Board corners, proportionally or independently.
- Position: Activate one or more of the position icons to add a QR code to the corresponding corner of the Art Board.

QR codes contain the name of the job plus a special character that represents its position. To ensure the correct job name is used, you should only apply QR codes **after** naming the job.

To add underside camera regmarks, activate the Add USC Marks checkbox.

- USC Stagger: Adjust the stagger distance from 12 mm to 50 mm.
- USC Offset: Offset the USC regmarks from the Art Board edges, from 5 mm to 100 mm.
- Position: Activate one or more of the position icons to add USC regmarks relative to the leading edge highlighted in orange.

**NOTE:** To apply USC regmarks, the artboard must be 801 x 801 mm / 32 x 32 in. or larger.

To add both QR codes and USC regmarks to the same job, activate both checkboxes.

The position icons change appearance based on which checkboxes are selected:




QR codes and USC regmarks are placed in a special layer named QR / USC, and are separated into sublayers therein.

## 3.6. Outputting files

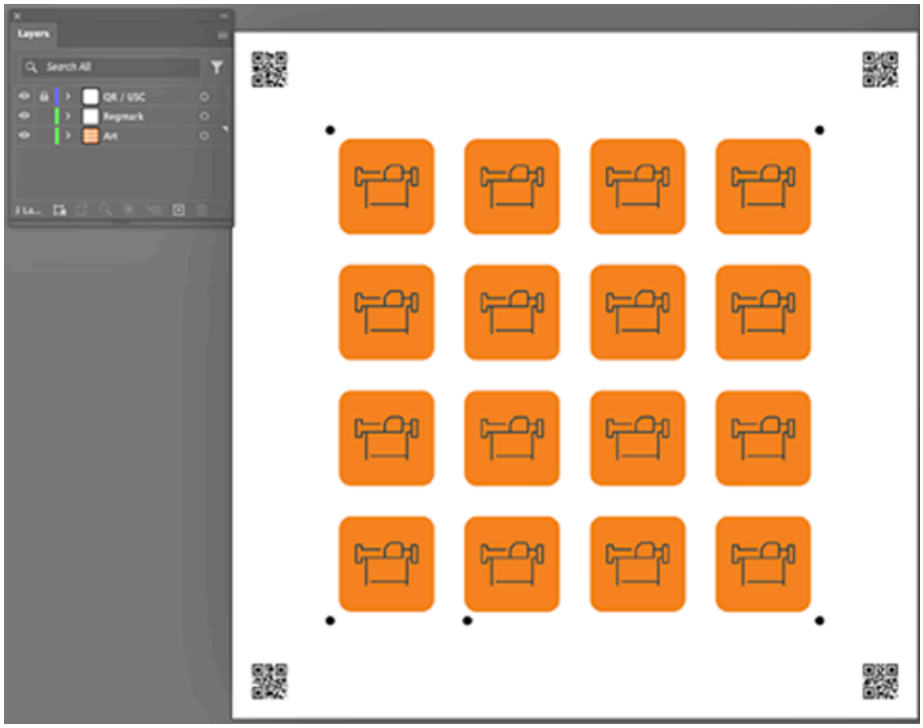
If you are using ai-cut to prepare your complete layout, follow the Saving as a print file and Saving as a cut file sections below.

If you are using ai-cut to prepare graphics that will be nested, tiled, scaled, or otherwise altered by your RIP or layout application, you should take advantage of the i-script workflow. Save a single PDF that includes the print graphics, Line Type Layers, material and registration marks. This allows the RIP or layout application to output a cut file that matches the final, complete job layout later in the process.

i-script is a set of rules that define how a RIP or layout application should output cut information to iPC. i-script files were originally .CUT files. Later, the concept was extended to include multiple files in a JDF bundle (.ZIP) file. JDF bundles include additional metadata, such as barcode positions, material name and material size.

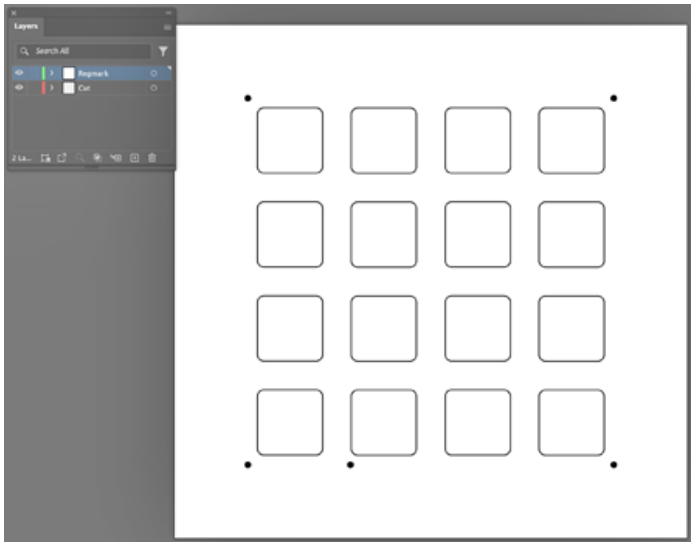
### 3.6.1. Saving as a print file

To save your design in Adobe Illustrator as a printfile, save it as a PDF, which is the most universal file format used in modern RIP systems. Before saving the file, make sure to remove the layers with cutting data (Cut, Crease, etc...). When saving the PDF, select the 'high quality print' option in the PDF output.



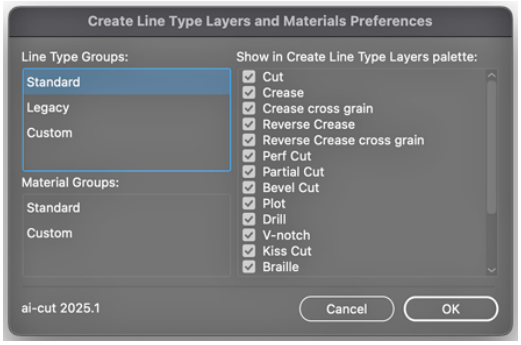
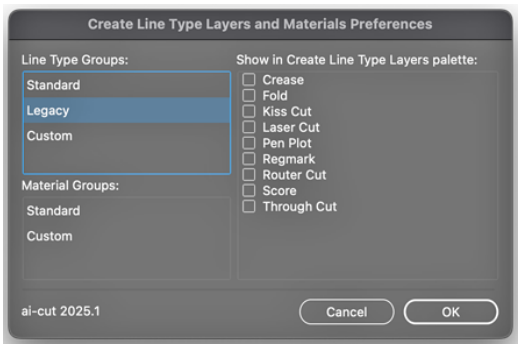
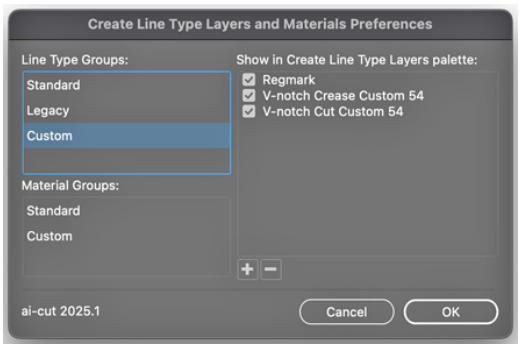
### 3.6.2. Saving as a cut file

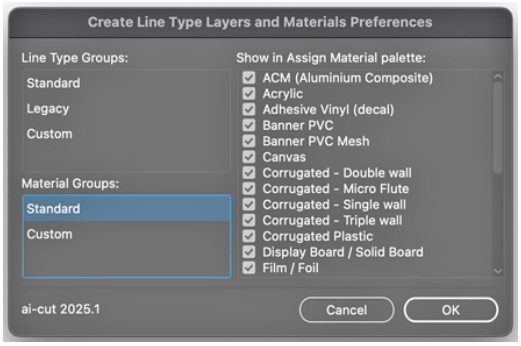
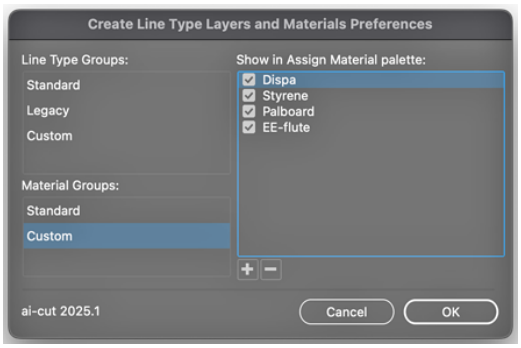
To save a cut file from an Adobe Illustrator, it is recommended to use PDF, which is the best supported file format in iPC. This will keep the layer structure in the cut file. First remove all layers from your designs that contain print data. Only keep the layer(s) with cutting and registration mark data. If the job contains QR codes, be sure to remove the QR code sublayer before saving the cut file. Save this as a default Adobe Illustrator PDF.



# 4. AI-CUT PREFERENCES

You can open the ai-cut Preferences by choosing ***Preferences*** > ***Kongsberg*** > ***ai-cut Preferences.***
In these Preferences, you can define what Line Types will be shown in the Create Line Type Layers window, and what materials will be shown in the Assign Cut Material window. You can also see the version number of the plug-in in the lower left corner of the window.

| | |
|---|---|
|  | The **Standard** Line Type Group contains all standard line types recognized by iPC, the Kongsberg table software. |
|  | The **Legacy** Line Type Group contains the line types that were standard in i-cut Vision Pro, the predecessor to iPC. |
|  | The **Custom** Line Type Group allows you to manually create Line Types, by clicking the + button. |

| | |
|---|---|
|  | The Standard Material Group contains all standard Material Families recognized by iPC. |
|  | The Custom Material Group allows you to manually create new materials, by clicking the + button. |

Using the checkboxes, you can decide what Line Types you want to show in the Create Line Type Layers window, see Create Line Type Layers on page 8 , and which materials you want to show in the Assign Cut Material window, see Assign Cut Material on page 10 .

# 5. TROUBLESHOOTING

| Symptom | Issue(s) |
|---|---|
| When using **Add Auto Marks**, regmarks are not inserted close to cut paths of masked raster or vector images. | Even though spaces within a clipping mask appear to be open, they are treated by ai-cut as filled space. For best results, hide these images and show only their cut paths before inserting regmarks. |
| When using **Add Auto Marks**, regmarks are not inserted close to cut paths of transparent raster images. | Just like clipping masks, transparent areas of raster images are treated as filled space. For best results, hide these images and show only their cut paths before inserting regmarks. |
| When resizing or moving the Art Board, the QR codes do not move accordingly. | QR codes do not redraw automatically. Simply deactivate and reactivate the QR codes checkbox to redraw the QR codes to the current Art Board. Ideally, QR codes should be added as a final step when preparing the layout. |
| When resizing or moving the Art Board, the USC regmarks do not move accordingly. | Just like QR codes, USC regmarks do not redraw automatically. Deactivate and reactivate the USC regmarks checkbox to redraw the USC regmarks to the current Art Board. |
| iPC can not find the file when the QR code added with ai-cut plug-in is read. | The file name contained in the QR code is taken from the job name when the QR code is applied. Be sure to name the job, either when it is created, or by saving it, **before** the QR codes are added.<br>**Symptoms:**<br>Duplicate features are available in *Window -> Kongsberg -> ai-cut* and Illustrator crashes when closing.<br>**Issue(s):**<br>If the previous version of ai-cut was manually copied into the Illustrator plug-in folder, both versions should be removed, and the latest version should be reinstalled using the installer. |