

Flatbed UV Printing Reference Guide

Fall 2026

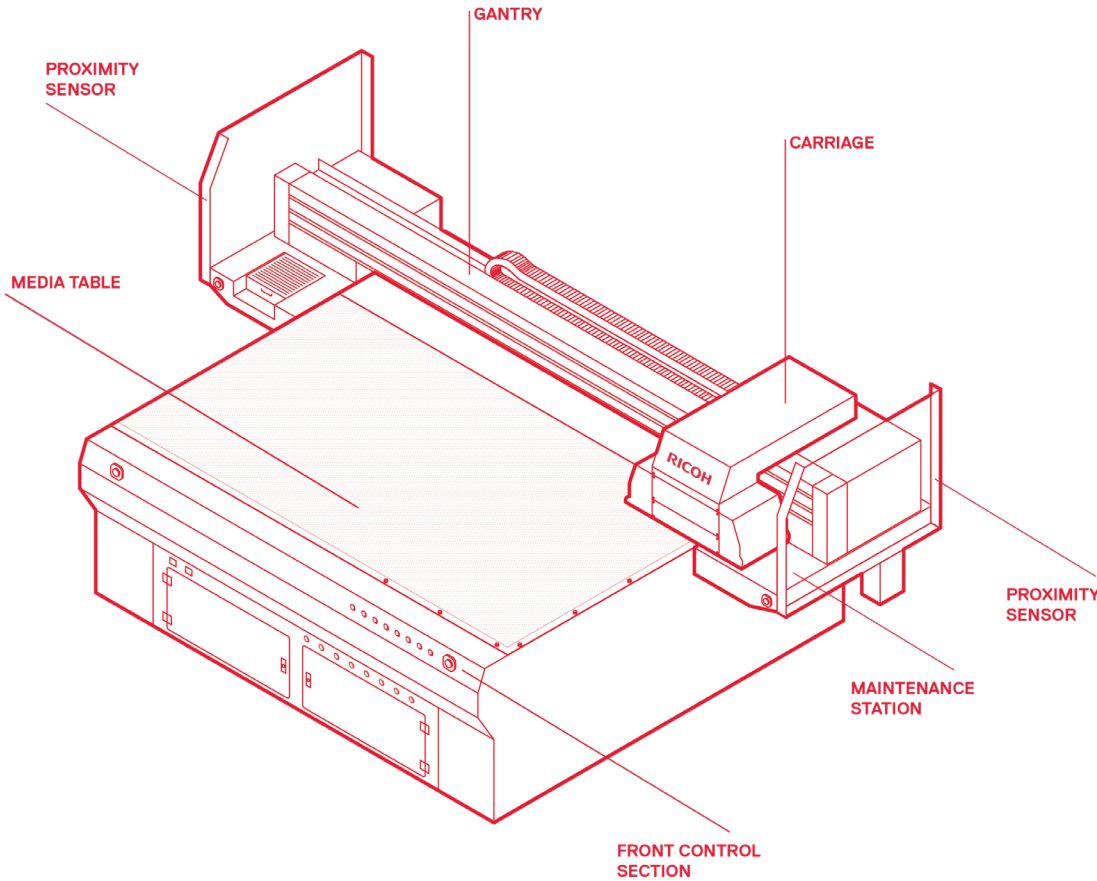
The
Creative
School

**Design +
Technology LAB**

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How the RICOH Works



The RICOH Pro TF6250 is a large format flatbed printer. It can print on a wide range of porous and non-porous substrates using UV curable inks. **The RICOH is able to print in CMYK, white, & clear inks**, where the white and clear inks are activated by using a spot colour set up.

Our printer is capable of printing on materials up to 4" thick, 4' wide and 8' long. This includes paper, wood, metals, PVC, plastics, glass, foam, ceramics, and more. When printing, the material is stabilized and flattened with suction applied through the vacuum holes in the media table. When the suction is insufficient, the material is fastened to the table with tape.

During the printing process, the printer head travels back and forth, one millimeter over top of the set-up material. While it travels, it simultaneously deposits ink droplets and cures them using bright UV lights. This printing style allows for the possibility of layering ink and can be built up to shallow relief.

Before Starting

Plan Ahead

To access the flatbed UV printer, you must book an appointment in advance. We do not offer same day appointments or rush jobs. You must have your printing files ready when you book an appointment and you must be present at your appointment.

Check Material Size

Double check that your digital file artboard matches the size of your material.

In Photoshop: Image > Canvas Size

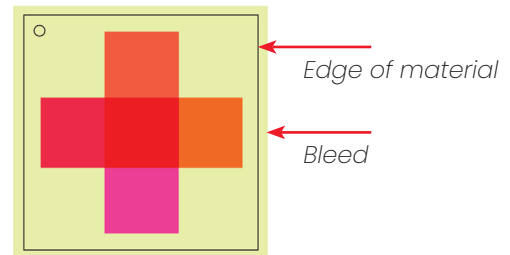
In Illustrator:  or Shift+O > Artboard properties > change the width and height values

Printing on Light Materials or Fabrics

If you want to print on any lightweight materials—such as papers, thin plastics, and fabrics—that do not have a strong suction from the vacuum will need to be taped to the bed. We ask that for any light materials, you provide at least 1" of clearance for taping. That can either be shrinking your print by at least 1" on all sides or providing a piece of material that is at least 1" larger on all sides.

Creating a Bleed

If you want your image to go over the edge of the material make sure to add a bleed to your image. This refers to the amount of the image that will be going over the printed surface (*we suggest 0.125"*). When sending in a file, make sure you indicate that you have added a bleed and the bleed amount.



Ink Properties

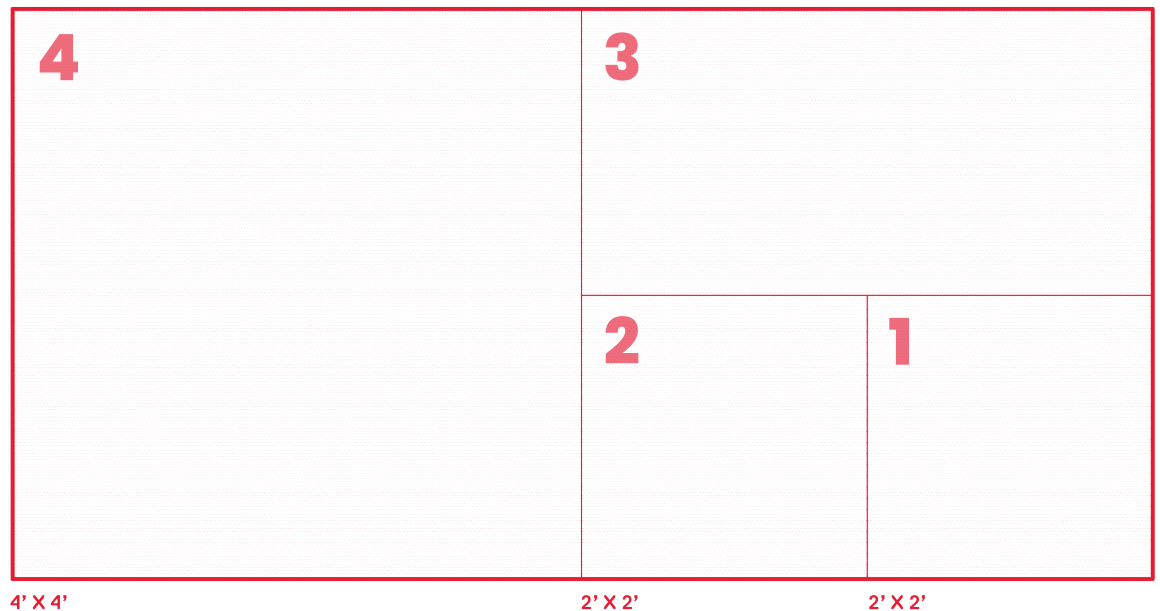
When printing in CMYK, light colours will appear translucent, while dark colours, including Spot 1 (white) will be opaque. This means pale colours on acrylic will allow light to pass through, and on wood, they will reveal the grain beneath. As a result, the substrate colour will influence the final appearance of your print. Dark colours, including Spot 1, print opaquely. This makes it useful for casting shadows or building up layers to create relief.

Vacuum Areas

When choosing a material size for UV printing, it helps to make sure that the material fits within these suction areas. You want to utilize the vacuum area efficiently to ensure as strong suction as possible. During the printing process, the technologist will cover the remainder of exposed vacuum holes to further improve adhesion to the media table.

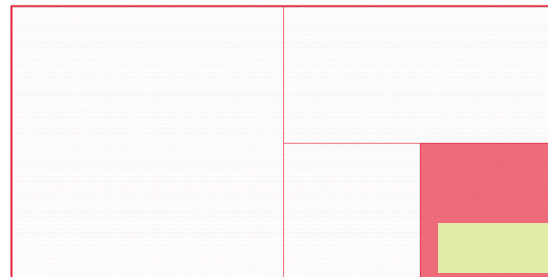
MEDIA TABLE - VACUUM SUCTION AREAS

4' X 2'

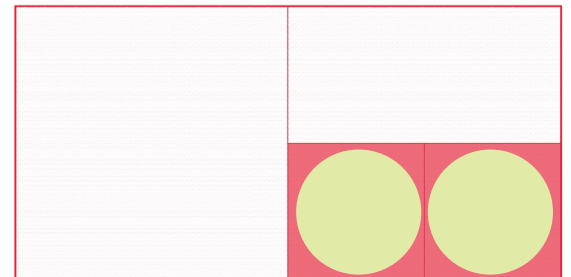


Examples of layouts

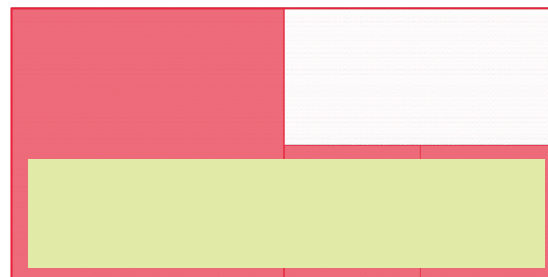
Material
Vacuum



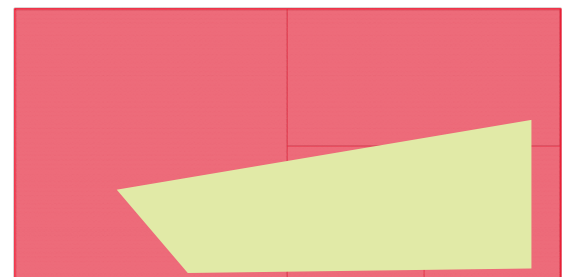
This is a standard set-up.



This is a standard set-up.

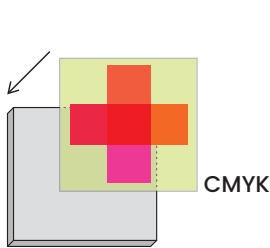


The excess area will be covered with paper.

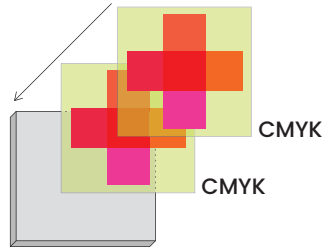


When the material bleeds over into additional vacuum areas, the excess surface area will need to be covered up. The time required for this set up will be reflected in the cost.

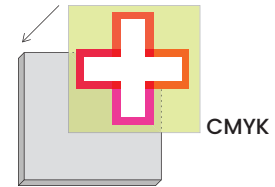
Printing Techniques



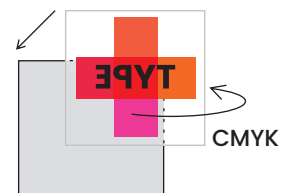
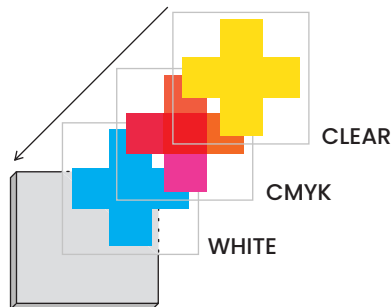
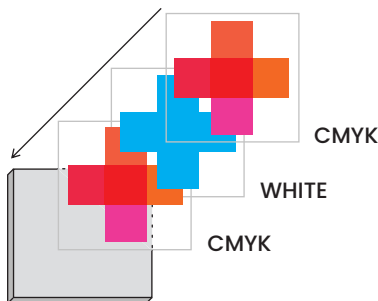
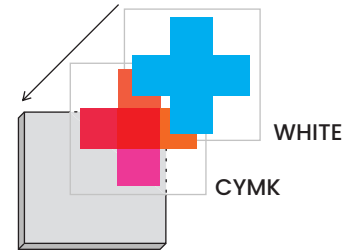
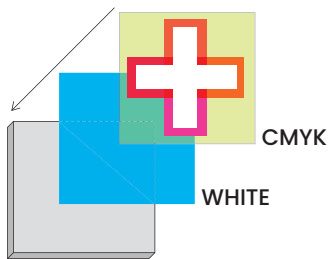
Standard single CMYK layer



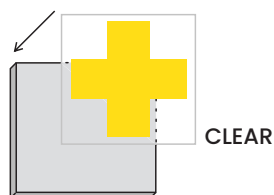
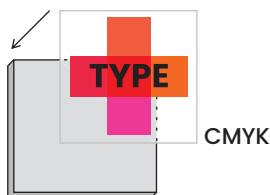
Two layers to deepen the value



Any white elements or light colours will be transparent



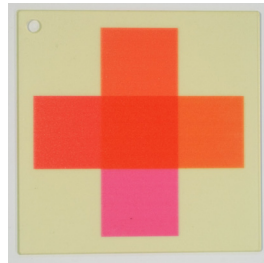
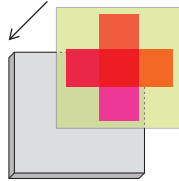
If you are viewing the design through a translucent material.



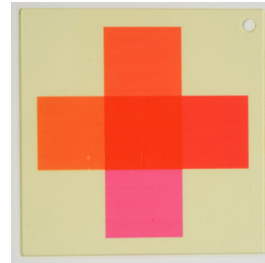
These variations are relevant depending on the display, material and desired outcome of your peice.

Print Examples on 1/16" clear acrylic

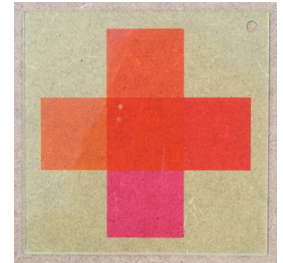
1 layer of CMYK



ink side on white background



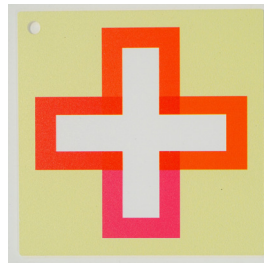
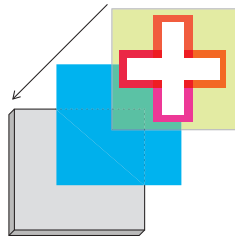
back side on white background



textured background

**1 layer of white
1 layer of CMYK**

white indicated by cyan



ink side on white background



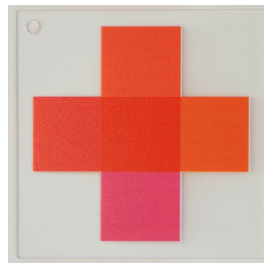
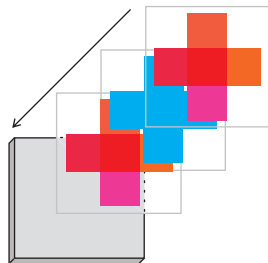
back side on white background



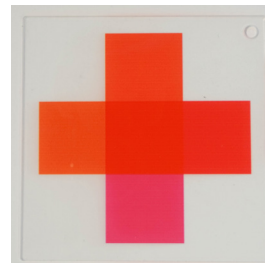
front side on textured background

**1 layer of CMYK
1 layer of white
1 layer of CMYK**

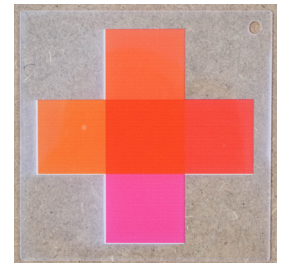
white indicated by cyan



ink side on white background



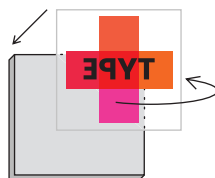
back side on white background



back side on textured background

1 layer of CMYK

mirrored vertically



ink side on white background



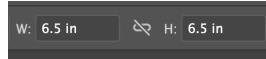
back side on white background



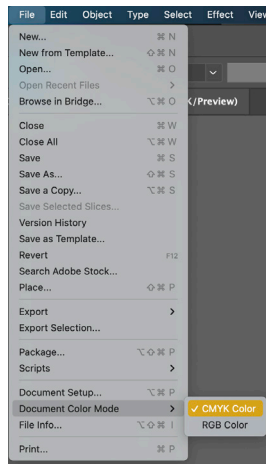
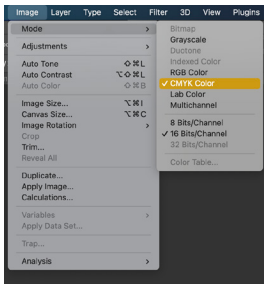
Back side on textured background

How to Prep Your File for Printing

When prepping your file for UV printing, you have the **option to either create a file from scratch or use our template files.**



If you are creating your own file, **be sure that the file size** (*canvas or artboard depending on your software of choice*) **matches your material.**



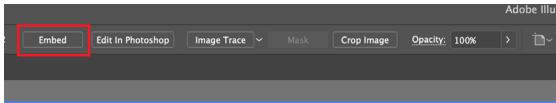
If you are using our templates, please select the file that will best accommodate your material size. These sizes are based on the vacuum suction areas of the printer. Our templates are available on our [UV Printing Resources page](#).

Make sure that your file is in CMYK colour space.

In Photoshop: > Image > Mode > CMYK

In Illustrator: File > Document Colour Mode > CMYK

Convert any text to outlines in Illustrator. To do so, select your type, Type > Type > Create Outlines.



Remember to embed any images in Illustrator by select your image and click Embed at the top.

Once you are finished creating your file, save your file as a PDF or TIFF. PDF is the standard for high quality printing whereas TIFF is good for photo accuracy and giving you more control. You can decide what works best for your project, but if you are unsure which to choose, we recommend PDF.

Please ensure that your PDF/TIFF is under 500MB.

Files any larger will take very long to process to be sent to the flatbed printer. The time that it takes a technologist to process your file does go toward the charged printing time.

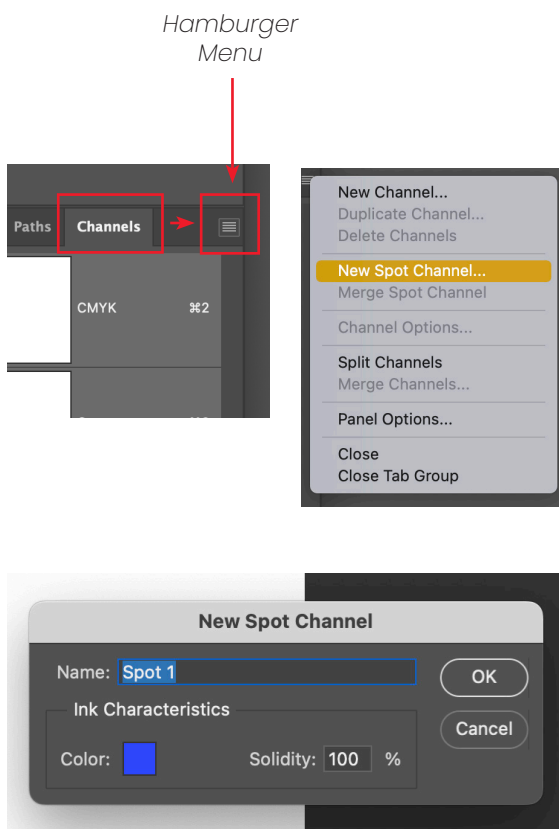
To submit your file, please create a folder in your TMU Google Drive and put the file in there. Then, share the link to this folder in the UV Printing Booking Form when prompted.

Using Spot Colours

Spot colour refers to a pre-mixed specialty ink. The D+T LAB offers white and clear. If you want to print with these inks you will have to identify them by creating a spot in Illustrator or Photoshop.

See below for software specific instructions.

Photoshop Spot Channel Workflow



Create a selection of the areas that you want your spot to activate. You can do this by using various selection tools.

Select the areas you want to mask. Navigate to the Channels panel on the right, click the hamburger menu (top right of the panel), and select **New Spot Channel**. Name it **"Spot 1"** for White, or **"Spot 2"** for Clear.

Alternatively, you can skip the initial selection and create a new spot channel and paint in the channel layer using black. It will appear in the colour you assigned to visualize the spot.

Save your file as a PDF or TIFF that is under 500MB.

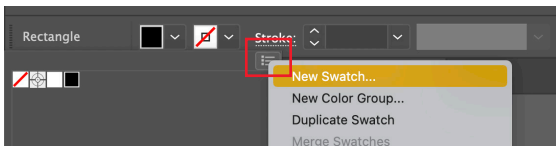
When sending your file that has spot colours, specify your desired printing order. For example: If specified White / CMYK / Clear we will print it the white first, then CMYK, then clear. The order varies depending on what material you are using and how you will be viewing your work.

Illustrator Spot Channel Workflow

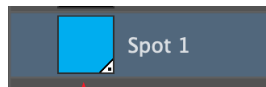
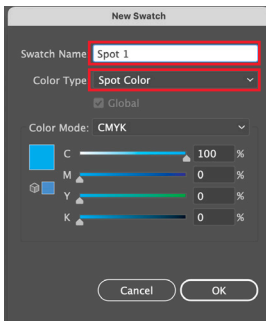
Create a separate layer with elements of your design that you want to be clear or white. Name that layer "Spot 1" for white and "Spot 2" for clear. If using both clear and white make sure they are on separate layers. Move the spot layer(s) that you created to the top of your design layers.

This step does not activate the spot colours, this is to help keep your file organized!

In order to activate the spot colour, you need to create a spot colour swatch. If using both clear and white, you need to create a spot colour swatch for each one.



To create a Spot swatch: In the Swatches window (Window > Swatches) > click the hamburger menu in the top right corner > click on New Swatch.



Your swatch should look like this

In the pop-up window, change the name to "Spot 1" for white "Spot 2" for clear (*it needs to spelled exactly like this*) > change Color Type from Process Color to Spot Color > pick a colour that contrasts your design > assign that spot swatch to the design elements on your spot layer.

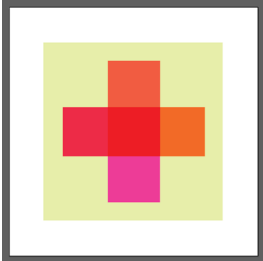
Go to Window > Attributes. **Select all of the elements in your file and toggle Overprint Fill on.** It should be a checkmark when toggled on. This allows the program to read all the layers of your file underneath the spot elements.

Save your file as a PDF or TIFF that is under 500MB.

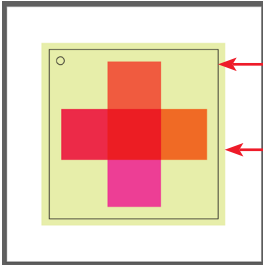
When sending this file, specify the order you want your spots and your color to be printed. For example: If specified White / CMYK / Clear we will print it the white first, then CMYK, then clear. The order varies depending on what material you are using and how you will be viewing your work.

Laser Cutting + UV Print Workflow

CYMK final design



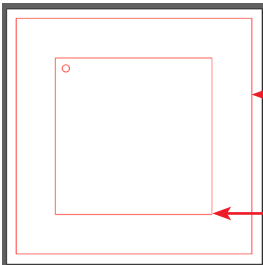
CYMK Registration



Template line

Included bleed

RGB cut file



Increased artboard

Cut line that matches the border of the print artboards

Lines of the design

Create your file in Illustrator in CMYK, with desired spots and a bleed if needed. If using Photoshop, export your design as an image and embed it into Illustrator.

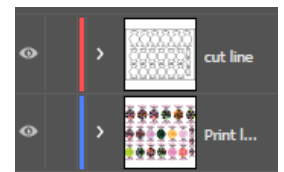
On a separate layer called "Cut Lines", move it to the top of your layers list. Create vector lines in this file that correspond to your desired cuts. Create an RGB copy of your file and adjust the vector linework to the required graphic attributes need for laser cutting from Illustrator. The printed design can either be deleted or hidden. **Please make sure that your cut lines are in the exact same position in both files.**

Submit your RGB laser cutting file to our Service Bureau and wait for it to be cut before booking a UV Printing appointment.

We recommend laser cutting before UV printing as it is much easier to align and position material on the printer bed than on the laser cutter. However, we realize that this is not possible for every material so please consult with us on what would be best for your project if you have any questions.



File Example



Material Selection

INK PROPERTIES When printing in CMYK, light colours will appear translucent, while dark colours, including Spot 1 (white) will be more opaque. This means pale colours on acrylic will allow light to pass through, and on wood, they will reveal the grain beneath. As a result, the substrate colour will influence the final appearance of your print. Dark colours, including Spot 1, print opaque. This makes it useful for casting shadows or building up layers to create low relief.

ACRYLIC PROS: Good for laser cutting, linear engraving, rastering, heat bending, and translucency.

ACRYLIC CONS: Can be expensive, breaks and cracks with applied force, prone to scratches and it is only recyclable through specialized facilities.

PET-G PROS: Affordable, flexible, translucent, recyclable, good for Laser cutting and heat bending/vacuum forming.

PET-G CONS: Wears, tears and scratches easily, can snap.

WOOD PROS: lends to woodworking techniques, good for laser cutting, light weight and durable.

WOOD CONS: The wood grain will persist through the print, this can be a desired effect. It is only compostable/recycled through specialized facilities.

FABRIC PROS: Can be sewn, manipulated into many forms, can be lasercut depending on the material.

FABRIC CONS: Dry clean only, avoid direct heat from an iron (apply craft paper as a barrier). Fabric takes a longer time to print.

WE HAVE PRINTED ON

Acrylic, wood, glass, PET-G, 3D prints, ceramic tiles, canvas, denim, leather, cotton, organza, paper, cardboard, styrene, metal, grip tape, mylar, craft foam, EVA foam, and foamcore.

FAILED MATERIALS

Bio-plastics, uneven surfaces & thin acetate.

The Ricoh Flatbed UV printer accepts a wide range of material, but it must be flat! When supplying material make sure it is flat, unwarped, sanded or ironed to a crisp surface. For unusual material or fabric, please provide extra sheets in case the print fails.

ACRYLIC

The D+TL has a selection of acrylic options available for purchase. We offer thicknesses in 1/16", 1/8" and 1/4".

PET-G

The D+TL has a selection of PET-G options available for purchase. We offer thicknesses in 0.02", 0.03", 0.04", and 0.06".

WOOD

The D+TL has a selection of Baltic birch plywood. We offer 1/8" and 1/2" thicknesses.

FABRIC

D+TL does not carry any fabrics. Stiffer fabrics yield better results and are quicker to print. A test print with your fabric is strongly recommended to ensure good results.

Your material must be wrinkle-free to avoid damage to the material and printer. We ask you to please iron any fabric you bring in for printing. **Your file and material needs to include a two inch margin.** We use this margin to secure the material to the media with tape.

The Ricoh uses UV resin-cured ink, which is more brittle on flexible fabrics. Especially when printing with viscous inks such as dark colors, white, or clear ink. Flaking may occur over time or with washing (thorough washing tests have not been conducted).