



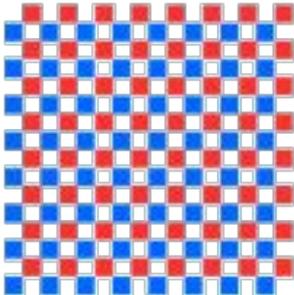
SERVICE
BUREAU

Risograph 101:

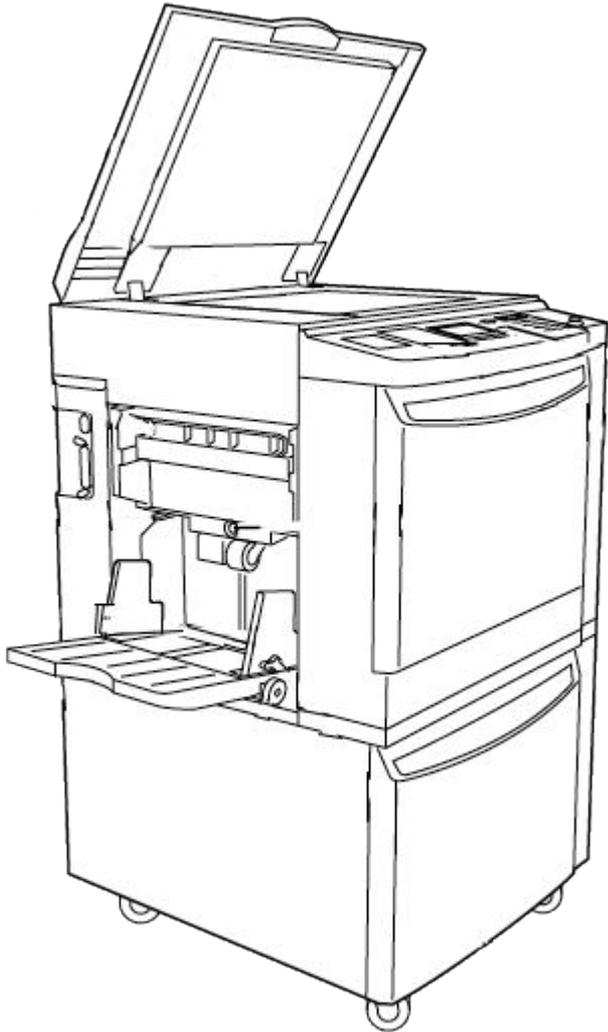
The Look of a Handmade Print with Digital
Technology on the Risograph



School of the Art Institute
of Chicago



What?
Risograph.

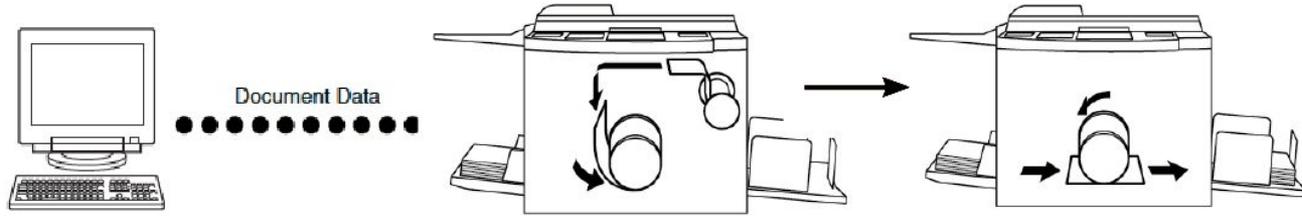


The Risograph:

It is as fast as a photocopier, but works like a screenprinter; using rich spot colors and stencils to create vibrant prints at an affordable price, with little impact on the environment.

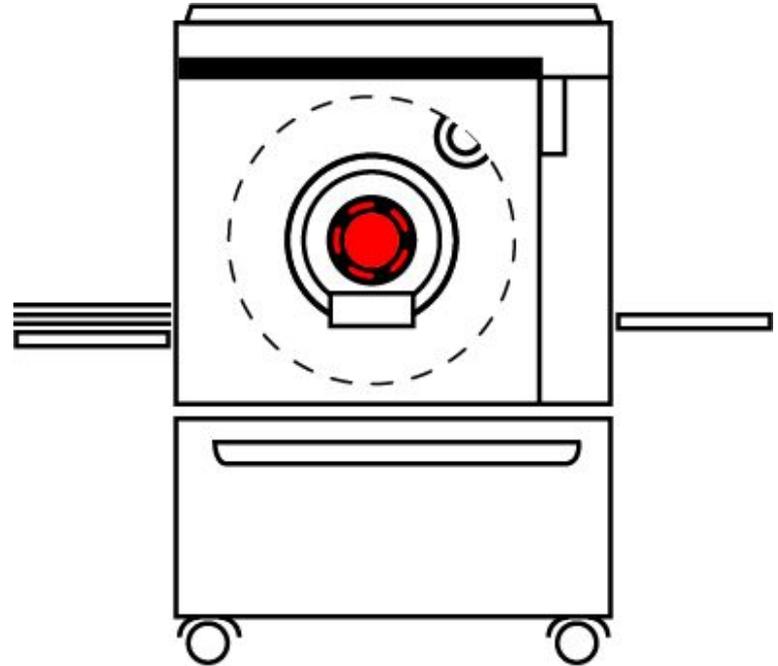
Great for bold designs, posters, comic art, pretty much anything with a graphic quality to it.*

**If you're looking for photographic quality reproduction, we recommend using our Inkjet or Laser printing services instead.*



- The pdf file is sent from a computer to the machine, and a master is created for each color by burning a negative image onto a waxed sheet.
- The master is wrapped around a drum and ink is forced through the voids of the negative.
- The paper runs flat through the machine while the drum rotates at high speed to print each image on the paper.

~ Our machine is an MZ-1090 and has two drums - we can print two colors in one pass which reduces smudging!



This is what our
machine looks
like!



Ink

We currently have 15 colors. Here we show you an approximation of the RGB color and the Pantone (PMS) reference information.

Risograph ink is soy based (and non toxic!) and sits on top of the paper, which means it can take a long time to dry and is prone to smudging.

The inks are translucent, so they can change slightly depending on what paper you print on.

Colors can be overprinted to create new ones - it is possible to blend any combination of tints together to produce color variants.

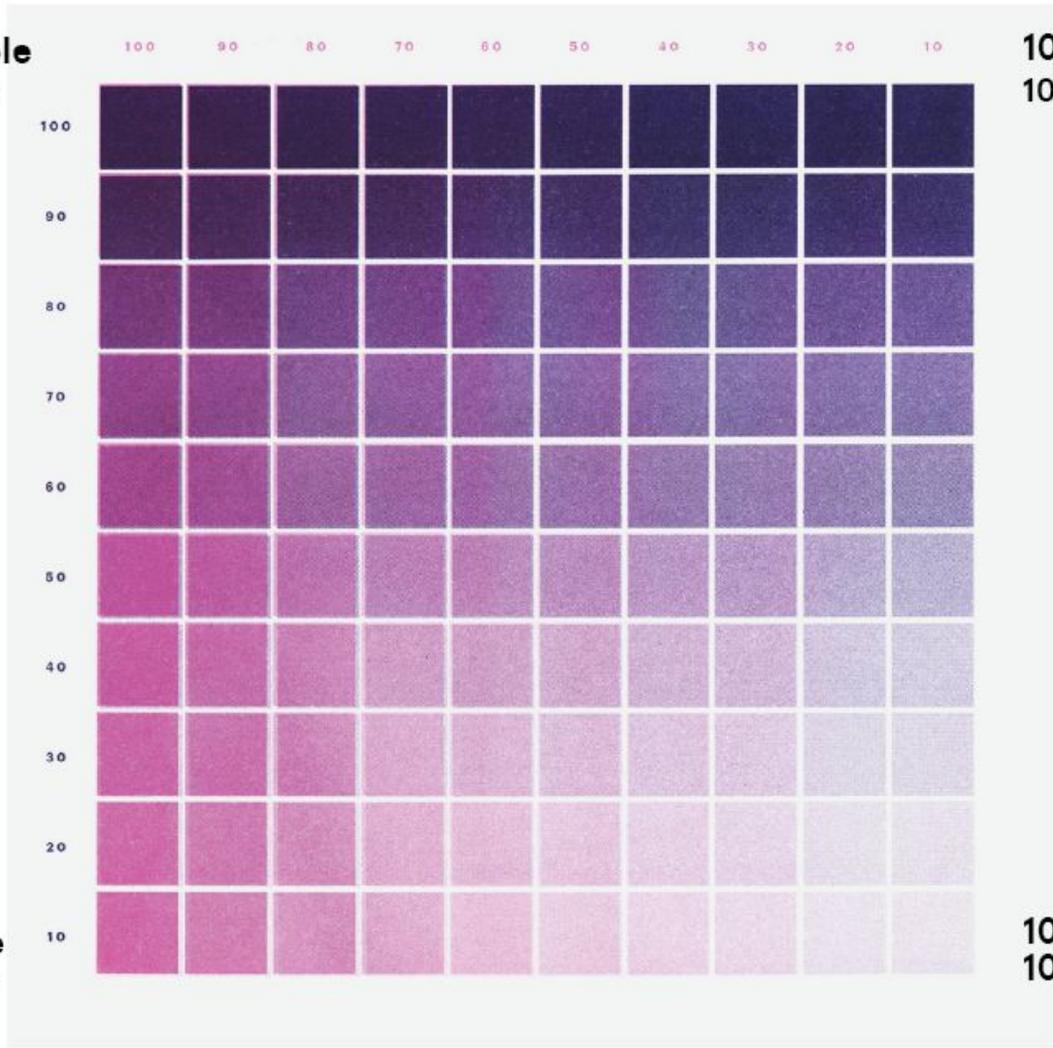


	100%	75%	50%	25%
Black Black U				
Bright Red 185 U				
Yellow Yellow U				
Blue 3005 U				
Purple 2685 U				
Green 354 U				
Burgundy 235 U				
Cornflower 292 U				
Met. Gold 872 U				
Sunflower 116 U				
Light Teal 320 U				
Light Lime 387 U				
Flo. Pink 806 U				
White [†] —				
Orange 021 U				

**100% Purple
100% Pink**



**10% Purple
100% Pink**



**100% Purple
10% Pink**



**10% Purple
10% Pink**

Paper and Ink Information

Our machine can print on 11x17 or 8.5x11 uncoated paper.

Standard uncoated white + colored papers are available in text and cover weights.

We offer a selection of paper from French Paper Co., a family owned and operated paper mill in Niles, Michigan.



RISOGRAPH INKS + PAPER

The risograph is an enviro-friendly and cost effective soy ink printer.

Each screen is made from banana paper and the printing process itself is highly energy efficient—generating only a minimum amount of biodegradable waste.

The soy based inks do not contain a drying agent so will never quite dry. They “dry” only by absorption so only work on uncoated stocks.

Keep this in mind when planning your project, especially if it will be handled extensively.

Ink Coverage & Opacity

- Too much ink coverage will cause the paper to get stuck to the drum, and will jam the machine.
- 100% ink density also increases the chances for smudging, needle scratches, and roller marks.



The riso can't print 100% ink density across 100% of the paper.

70%



75%

Large areas of solid colour can also cause problems! Especially around the edges and top/bottom of stencil (keep one end clear)

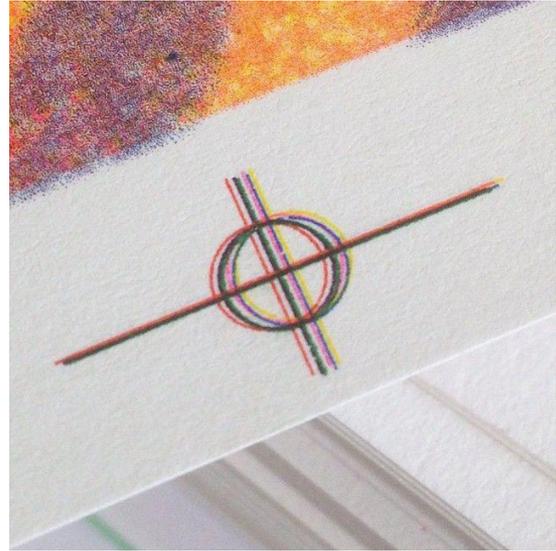
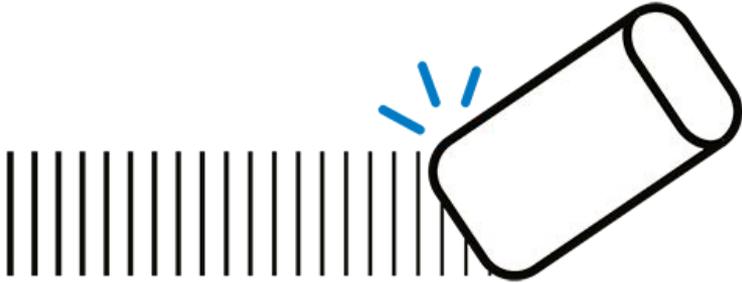
Double Sided Printing & Ink Placement

It is tricky to align Risograph prints perfectly from front to back.

→ Registration marks are very helpful for printing two sided!

Slight track marks from paper feeding rollers can also appear, especially when printing more than two layers and areas with heavy inking.

→ These can usually be removed with an eraser



Maximum Printable Area

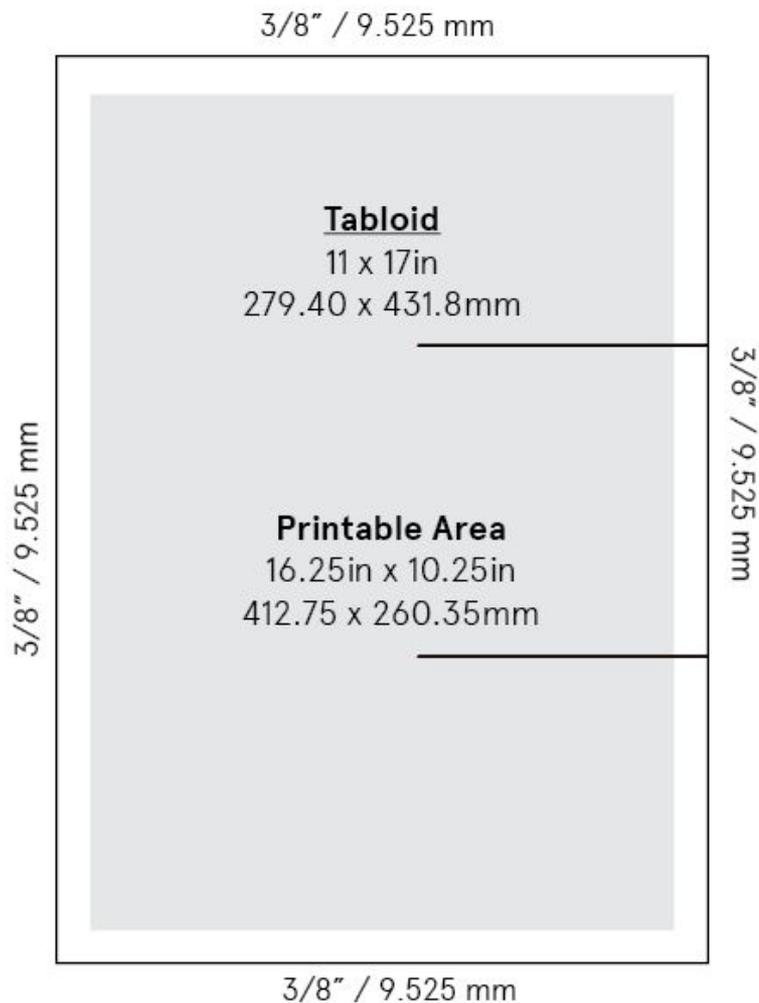
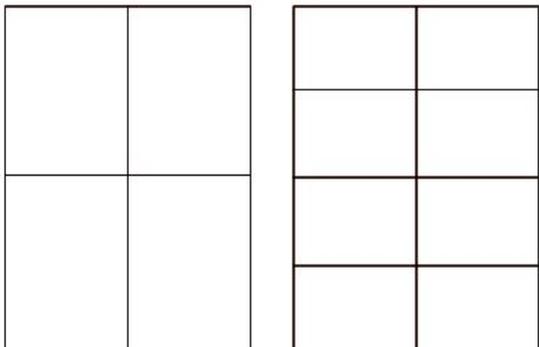
The Riso MZ1090 can print 2 colors in one pass on 11x17 and 8.5x11 size paper.

Letter - Printable Area: 7.75 x 10.25

Tabloid - Printable Area: 16.25 x 10.25

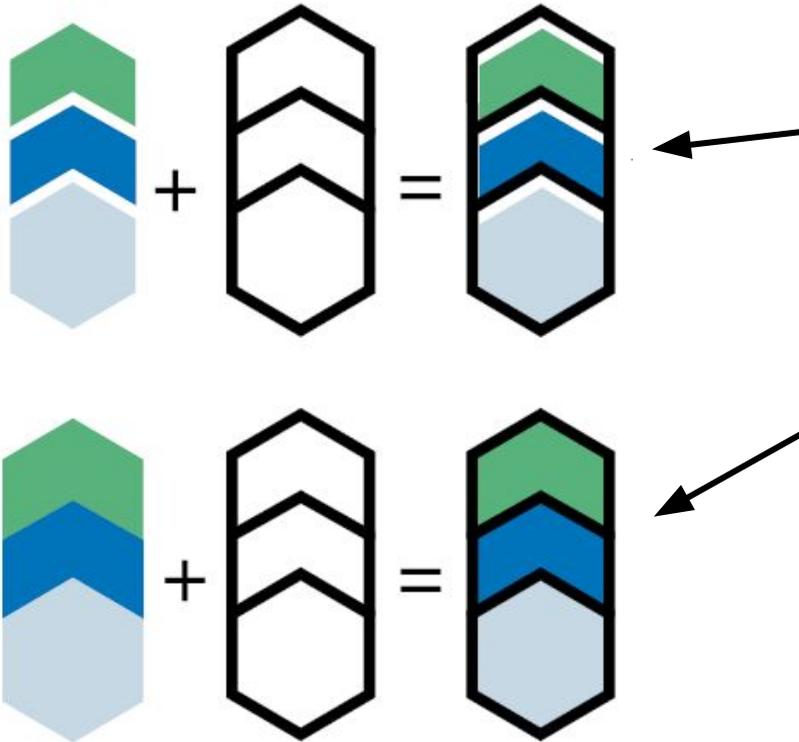
For full bleed designs, add a security bleed of at 3/8" around your artwork.

To save paper and masters, and to keep cost down you can interlock your smaller projects onto 8.5x11 and 11x17 sheets.



Registration + Accuracy

The Risograph has limits of accuracy. The overlaps can be adjusted manually in the printing process but misregistration WILL happen. Keep this in mind when designing your work.



Surfaces should overlap under lines.

Otherwise, white gaps may be visible on your artwork.

Line work printed over solid blocks of color will usually look best.

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Text should be only on one layer.

Relationship between grays and ink opacity

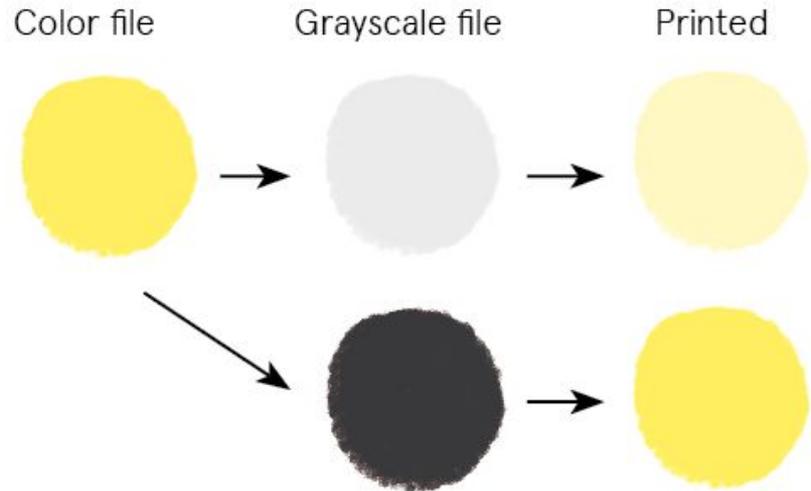
It is possible to make your files using color, but remember simply converting them to grayscale may not work.

If you convert a yellow to grayscale, it ends up looking like a light gray. A small amount of yellow ink will be printed which may be hard to see because yellow ink is already very light.

If you want a bright yellow, those parts of your files should look **BLACK** when submitted.

This example shows the relationship between gray values and opacity.

The darker the gray or black, the more ink is printed.



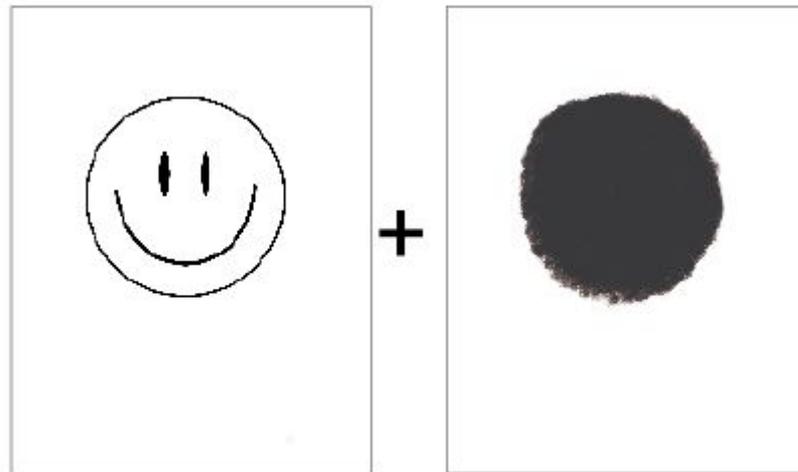
Basic File Set-Up

Your print can start as a hand drawing that is scanned, a vector based illustration in Adobe Illustrator, or a photograph.

When building your file we recommend keeping each element on separate layers. This will help when exporting PDF's later.

In our example file, we have a smiley face that will print as black, and background color that will print as yellow.

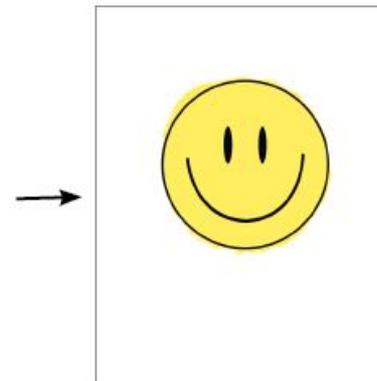
USE LAYERS TO DESIGN FOR EACH COLOR!



black.pdf

yellow.pdf

When this file is submitted we will have 3 files:
black.pdf
yellow.pdf
and a composite.pdf.

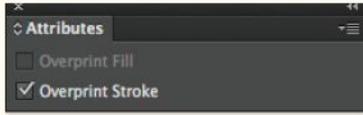


Printed
/composite.pdf

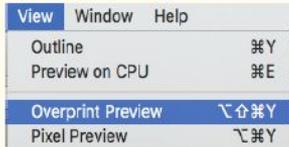
OVERPRINTING + KNOCKOUT

Overprinting is when color is printed over another to create a color mix.

To see the overprinting in Adobe Illustrator, select the object and use the **Attributes** window to select **Overprint Fill / Overprint Stroke**.



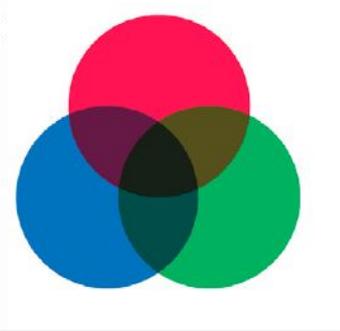
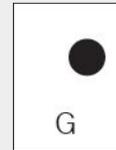
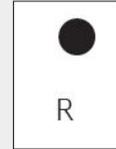
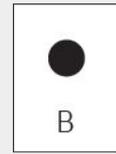
Be sure to have **Overprint Preview ON**.



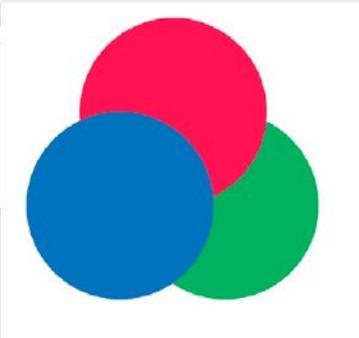
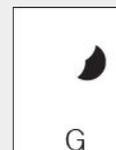
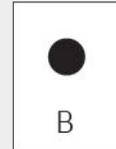
A **Knockout** is the opposite of overprinting. Instead of printing an element in one color on top of another color, the top element is knocked out of the base element so its true color shows.

A knockout removes a portion of the bottom image.

overprint



knockout



File Set-Up + Export: Photoshop

The Risograph only accepts grayscale PDF's.

Also, you will need to convert your Photoshop file to grayscale in order to save the yellow and black layers as separate grayscale PDFs before exporting.

Go to File > Export > Layers to Files

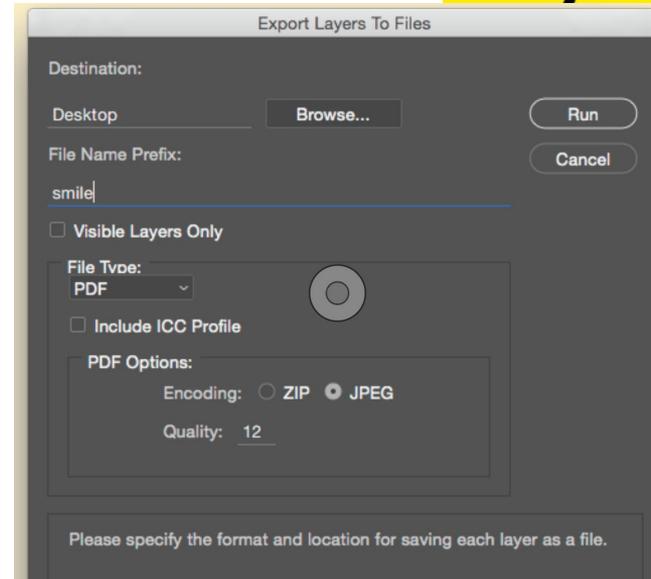
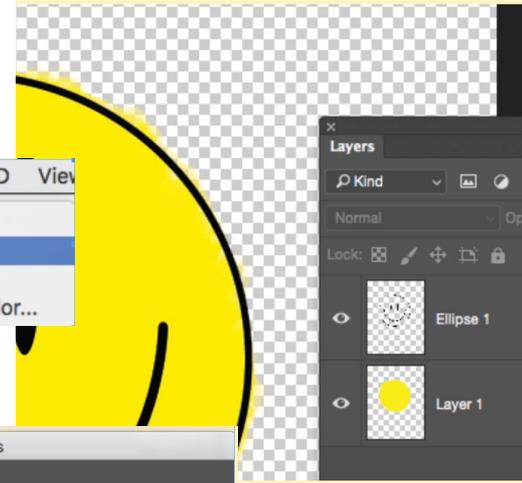
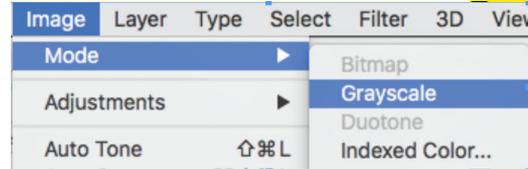
Choose where you want these files to be saved.

Choose a basic file name prefix.

Choose PDF, JPEG encoding and a Quality of 12.
(highest)

Click Run. This will save each of your layers into their own PDF.

You can now name them for submission. (black.pdf / yellow.pdf)



ILLUSTRATOR: FILE SET-UP

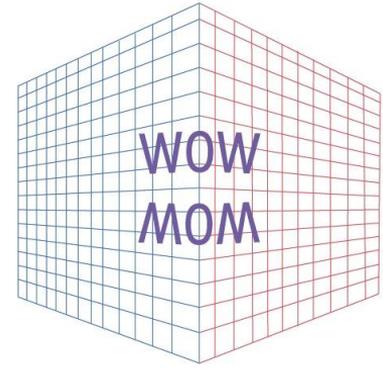
In this example, we have a 4 color print. We will end up with 5 files: One composite, or color image, and one for each separation.

You can choose the Pantone colors that coordinate with the colors you would like printed in order to preview what your final print will look like.

Because risograph ink is slightly translucent, the inks do not always layer as intended.

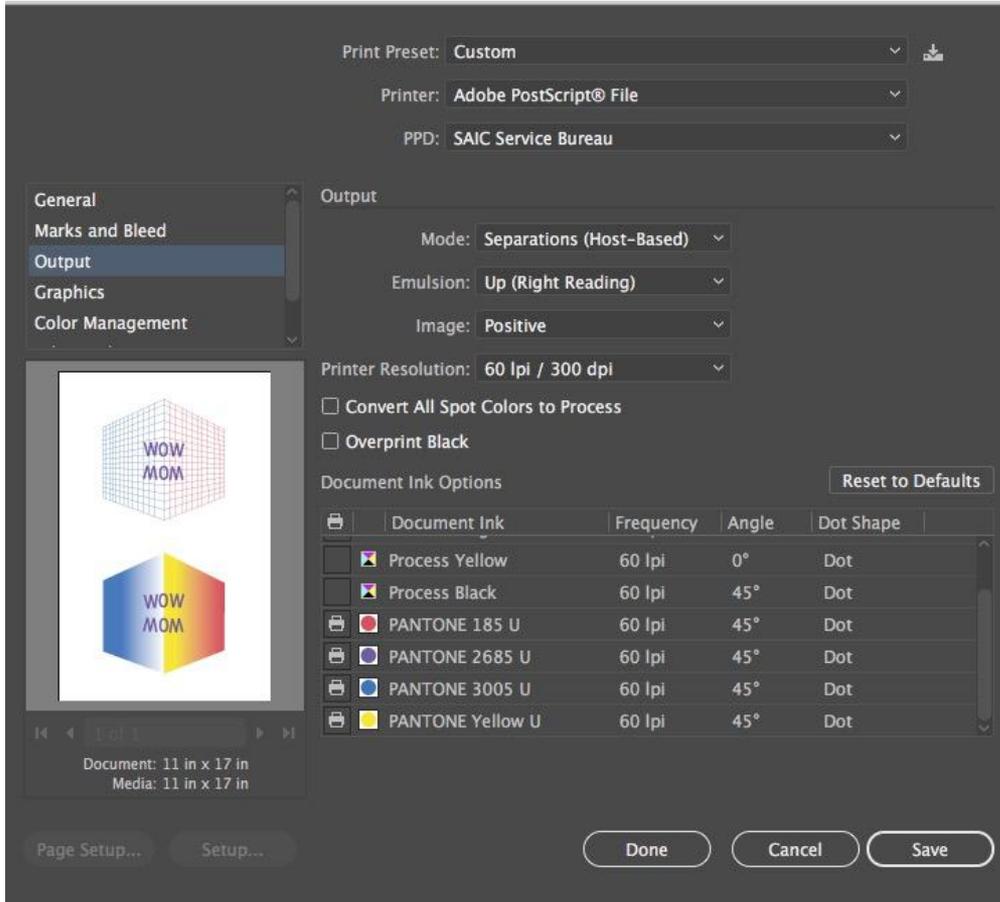
Light ink colors, such as yellow and lime green, will not show up well when printed directly on top of dark inks such as purple and black.

While color mixing (the purposeful layering of colors to make new ones) works well sometimes you don't want colors to mix. We will cover overprinting and knockout in the next section which will help you export your files correctly.



Illustrator Export

Choose Adobe PostScript File. This will produce a file we can easily convert to a PDF.



File > Print

Change your PPD to Service Bureau Driver.

If you don't this option, you need to download the drivers from:
sites.saic.edu/servicebureau/resources

Under Mode choose "Separations (Host-Based)"

Make sure "Convert All Spot Colors to Process" is unchecked.

Click on the small printer icon to the right, to uncheck the process colors.

Your Pantone colors that correspond to your risograph inks should be the only inks with the icon.

Click Save to create a Postscript file.

Converting to Postscript

You should now have a Postscript file of your design.
(It should have .ps at the end.)

To create PDF's you will now take your PDF and open it in Acrobat Distiller. To do this you can Control Click on the file and choose from the flyout menu **Open With> Acrobat Distiller**.

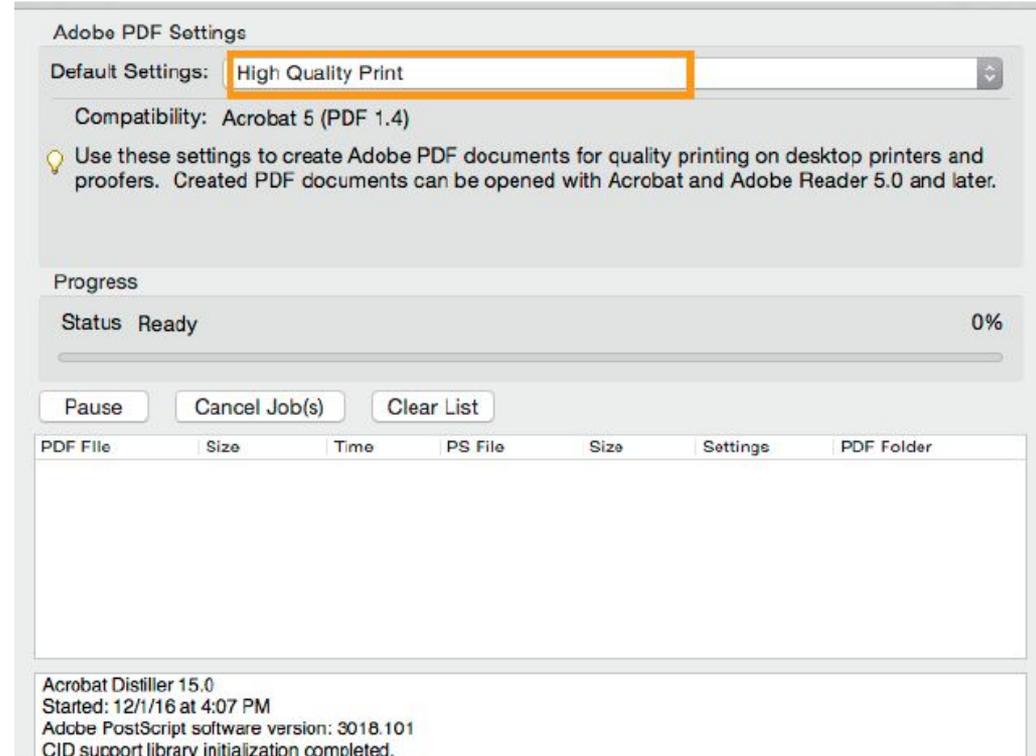
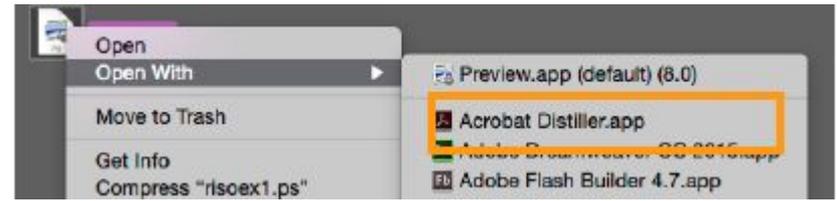
Or you can open Acrobat Distiller and go to **File>Open**
Navigate to where your Postscript file is and click open.

Default Settings: High Quality Print

The file will be processed immediately. You will see a PDF appear with the same name on your computer.

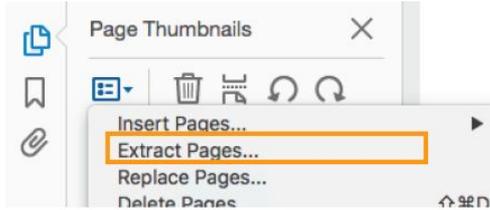
Adobe Distiller will convert the .ps file to a grayscale PDF with all your separations.

It will also knockout all the areas that would normally overprint if you separated the file by yourself.

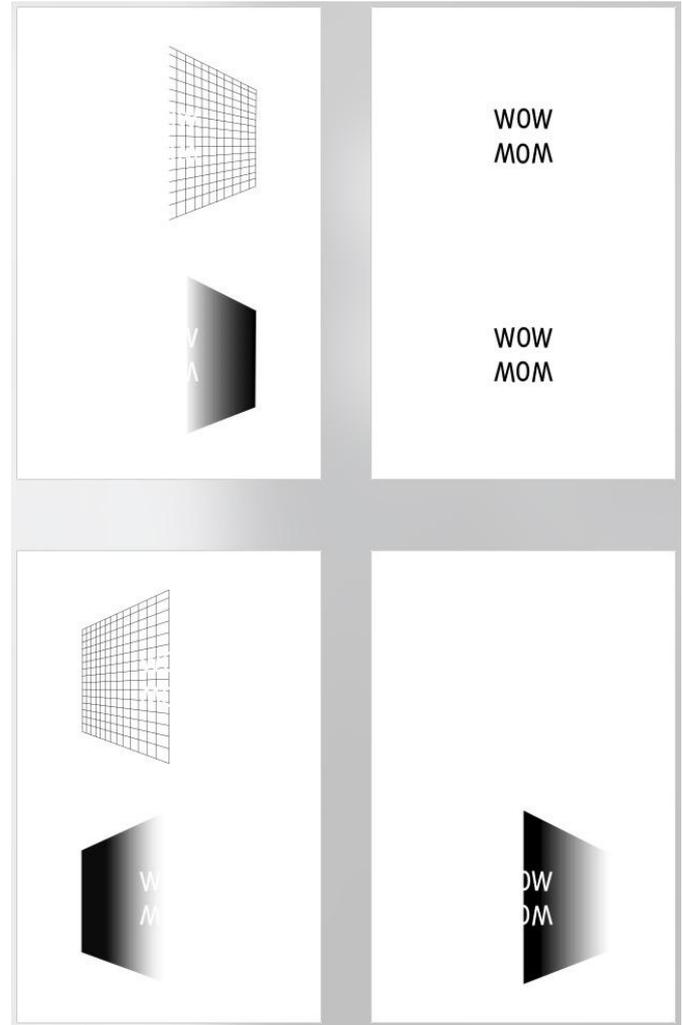


Illustrator PDF

You should now have a 4 page PDF with 4 separations.



To separate these pages into 4 separate files open them in Adobe Acrobat, click on the Page Thumbnail icon and Extract pages function.



File Naming

We would require that each file you are going upload to have printed use following naming convention:

Lastname_Filename_Color_Quality_Side.pdf

[Online info here!](#)

Types of screens that can be applied to the file.
HTL = Halftone Large
HTS = Halftone Small
G= Grain
L = Line

Keep it short, please.

Lastname_Filename_Color_Quality_Side.pdf

This should be easy!

The color you intend using for that file.
It should correlate to a specific color we stock.

You will use A or B to indicate the front or back of a 2 sided document.

Black, Blue, FloPink, MetGold, BrightR, Orange, Yellow, Light Teal, Cornflower, LimeGreen, Blue, Purple, White.

Submission Guidelines

DIGITAL FILES

For each print you submit we require ONE FILE PER COLOR and a Composite. A composite: a color PDF of what the end result is meant to look like.

(For example, for a 2 color print you would submit 3 files.)

FILE FORMAT

We accept PDF.

HALFTONES

The risograph creates halftones. No need to add them in Photoshop.

RESOLUTION

The Risograph machine has a resolution of 600 dpi. Use this resolution for your images. 300 dpi will also work but for thin lines we recommend 600.

FONT

Vectorize your font to avoid any problem of pixelation. Size should not go under 6 pt.

Submission Guidelines

When filling out the Risograph order form there are a few details to be aware of.

We have a 10 copy minimum

There are three main types of “qualities” you can choose from:

Line: Solid 100% density no matter what is in your file.
Good for text or flat shapes at 100% opacity.

Small Halftone/Large Halftone: Small dots that vary in frequency to give the appearance of a range in value.
Great for graphic work.

Grain: Similar to a photo or film grain, this subtle quality is great for gradients and is the most popular choice at the Service Bureau.

[Digital Storefront!](#)

Happy Printing!

