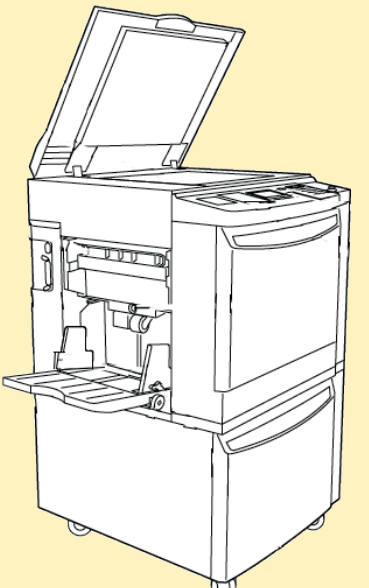
everything you need
to know about

Risograph Printing

SAIC SERVICE BUREAU

What's Risograph printing?

48 hours	
	2-color Riso Prints take 48 hours For a single sided print Add 24 hours for each additional color and side Turnaround times are dependant on drying time between printing each color and side. There are no Rush options for Risograph.

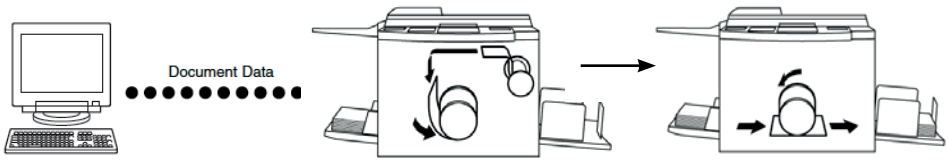


Similar to screen printing, the Risograph uses single colors to print designs from a master stencil.

Riso sits between screen printing and offset lithography. Using a stencil-based printing process and soy based inks gives riso-prints a result similar to silkscreen with vibrant bright colors. 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.*

HOW IT WORKS



The file is sent from a computer to the machine. A **master** is created for each color by burning a negative image onto a waxed sheet.

This master is then wrapped around a drum and ink is forced through the voids of the master.

The paper runs flat through the machine while the drum rotates at high speed to transfer each image on the paper.

Our machine is an MZ-1090 and has two drums, which allows it to print two colors in a single pass.

PAPERS WE STOCK

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

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

Come by and view our sample book before placing your order.

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

They have an extensive catalogue of papers and ship very quickly. If you would like to see their sample packs please let us know.

You are welcome to bring your own paper if it fits these guidelines. We recommend bringing in a sample for the technicians to check before purchasing.

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 absorbsion so only work on uncoated stocks.

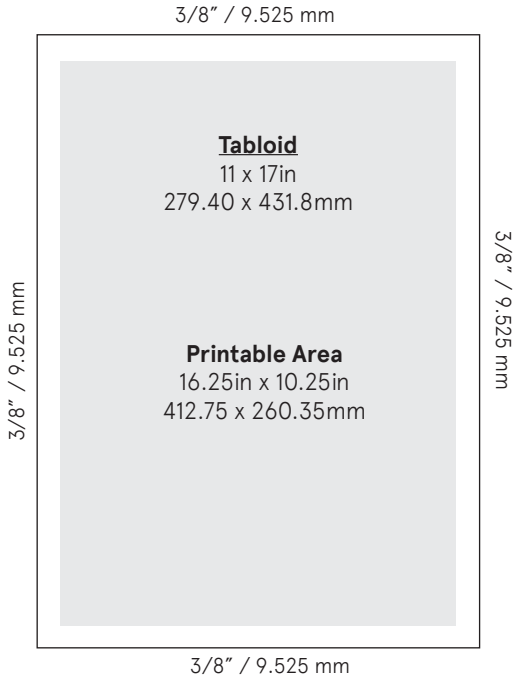
Keep this in mind when planning your project, especially if it will be handled extensively.

MAXIMUM PRINTABLE AREA

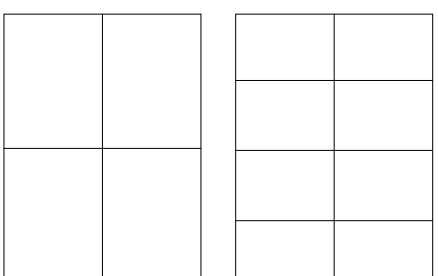
The Riso MZ1090 can print 2 colors in one pass on 11x17 and 8.5x11 size paper.

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.



PRINTING DOUBLE SIDED + INK PLACEMENT

It is very difficult to achieve a perfectly aligned two sided print. Keep this in mind in your design process when attempting to align front and back.

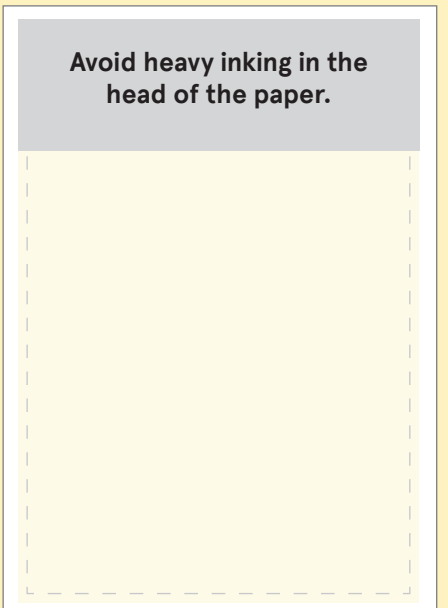
Slight track marks from paper feeding rollers can also appear, especially when printing more than two layers and areas with heavy inking.

These can easily be rubbed off with an eraser.

The risograph does print homogenous large color areas very well and they can also cause print marks and paper jams.

Place your designs on the bottom of the page if possible.

Do not use 100% density in this area.



REGISTRATION + INACCURACY

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.

SERVICE BUR

Text should be only on one layer.

COLORS + OPACITY

We currently have 11 colors. We show you here an approximation of the RGB color and the Pantone reference information.

Risograph ink is translucent, so its final appearance depends on the color of the paper it is printed on and the layering of each ink.

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

We have an Adobe Swatch file of all the colors available for download on our HELP page.

Check under the Downloads section!

Black / PMS- Black U
Hex #000000

Burgundy / PMS- 235U
Hex#914E72

Fluorescent Pink / PMS- 806 U
Hex #FF48B0

Bright Red / PMS- 185 U
Hex #F15060

Orange / PMS- 021 U
Hex #FF6C2F

Sunflower / PMS- 116 U
Hex #FFB511

Yellow/ PMS- Yellow U
Hex #FFB511

Lime Green / PMS- 380 U
Hex #D4E356

Green / PMS- 354 U
Hex #00A75C

Light Teal / PMS- 320 U
Hex #009DA5

Cornflower / PMS- 292 U
Hex #62A8E5

Blue / PMS- 3005U
Hex #0075BF

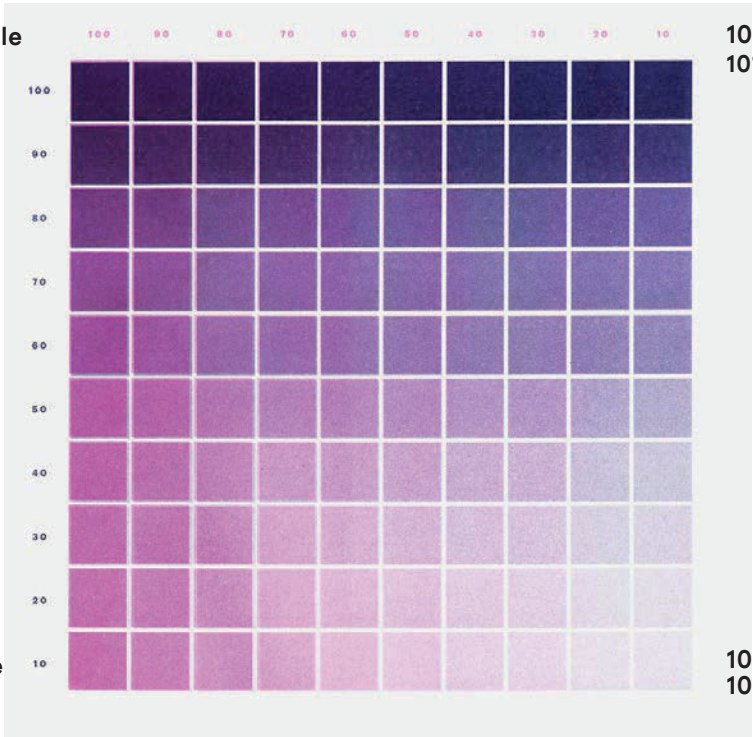
Purple / PMS- 275U
Hex #5D5580

Metallic Gold / PMS- 872 U
Hex #AC936E

White
Hex #AC936E

100% Purple
100% Pink

100% Purple
10% Pink



10% Purple
100% Pink

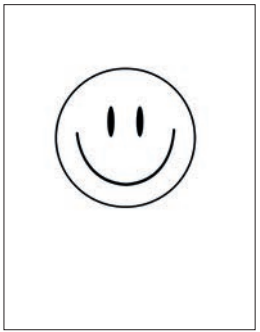
10% Purple
10% Pink

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 smily face that will print as black, and background color that will print as yellow.

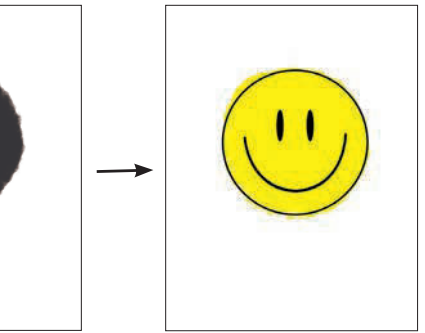


black.pdf

yellow.pdf

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

Use layers to design for each color!



Printed
/composite.pdf

This example shows the relationship between gray values and opacity.

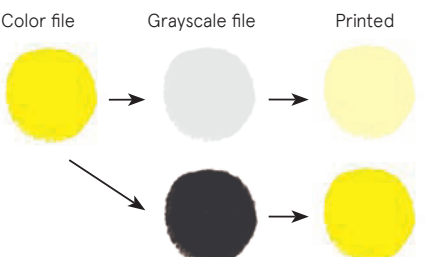
The darker the gray or black, the more ink is printed.

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.

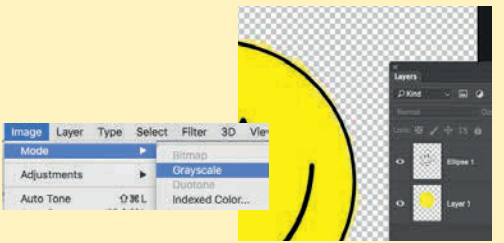
If you convert a yellow to grayscale, it ends up looking like a light gray. A small amount of yellow ink will be printed which may be hard to see because yellow ink is already very light.

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



FILE SET UP + EXPORT – PHOTOSHOP

You will need to convert your PS file to grayscale in order to save the yellow and black layers as grayscale pdf's before exporting.



Mode>Grayscale

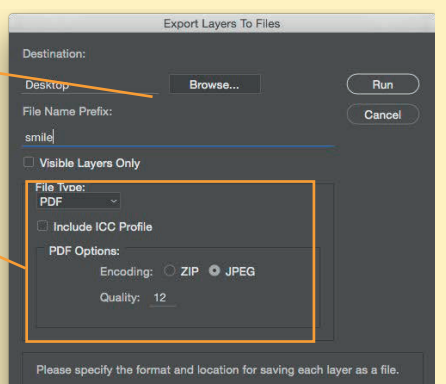
Go to File > Export > Layers to Files

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.

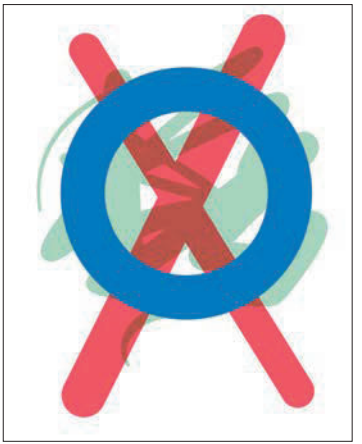
You can now name them for submission. (black.pdf / yellow.pdf)



ILLUSTRATOR – FILE SET UP

In this example, we have a 3 color print. We will end up with 4 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.

These Pantone colors are listed on our website and listed in the COLORS & PAPERS section of this book!

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

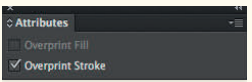
Light ink colors, such as yellow and lime green, will not show up well when printed directly on top of dark inks such as purple and black.

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.

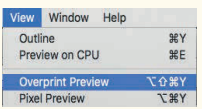
OVERPRINTING + KNOCKOUT

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

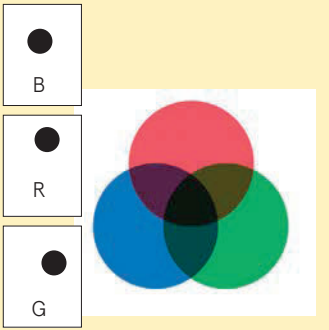
To see the overprinting in Adobe Illustrator, select the object and use the **Attributes** window to select **Overprint Fill / Overprint Stroke.**



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



overprint

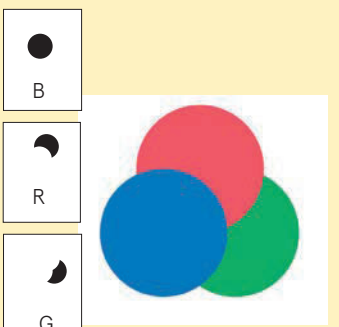


A **Knockout** is the opposite of overprinting.

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.

knockout



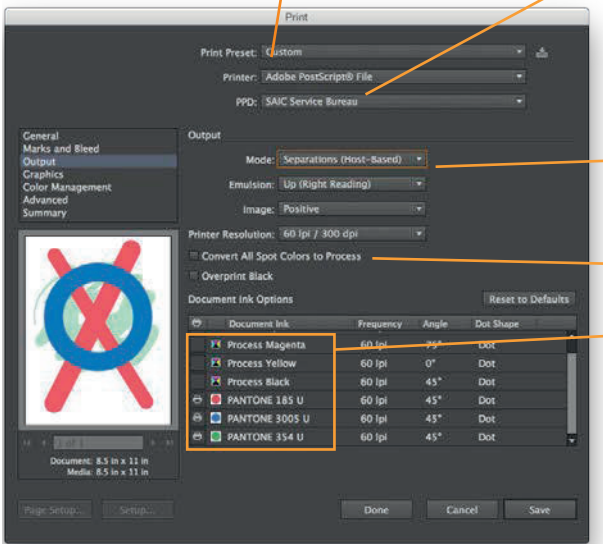
ILLUSTRATOR EXPORT

File > Print

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

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.

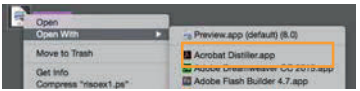
Click on the small printer icon [ ] to the right, to uncheck the process colors.

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

Click Save to create a Postscript file.

COVERTING POSTSCRIPT TO PDF

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**

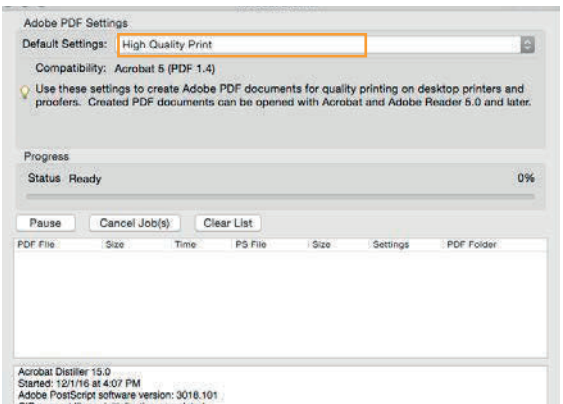
Navigate to where your Postscript file is and click open.

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.

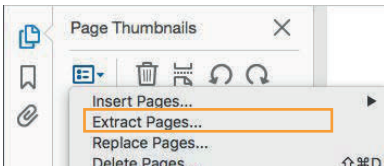


Acrobat Distiller is available on the Self- Service computers around campus. It is also available through the schools Creative Cloud application program.

ILLUSTRATOR PDF

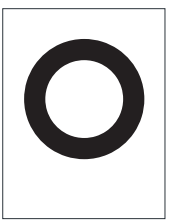
You should now have a 3 page PDF with 3 separations.

To separate these pages into 3 separate files open them in Adobe Acrobat, click on the Page Thumbnail icon and Extract pages function.

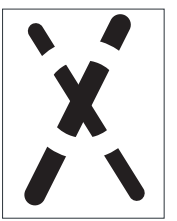


Notice how the area behind the blue circle is white on the red and green pages.

This will allow us to see the blue on top of white paper without color mixing.



blue.pdf



red.pdf

green.pdf

CMYK + PHOTOS

Riso printing was not designed for full color printing, however one can simulate a full color print by overlaying CMYK like separations.

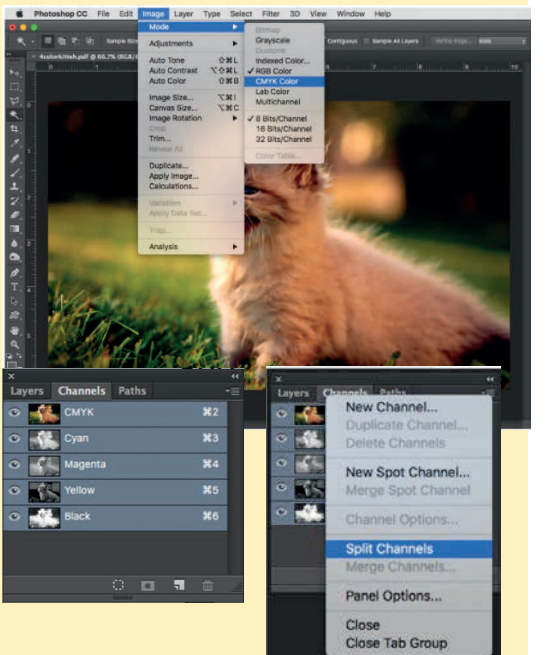
Since Magenta and Cyan inks are not available for the Riso, we can substitute these for Blue and Red, or Fluorescent pink.

You can do this by first converting your images to CMYK in Adobe Photoshop.

Open your **Channels Panel**.

Click on the options icon in the upper right corner of the Channels Panel box.

Click **Split Channels**.



black

yellow

cyan

magenta

Photoshop will split your image into 4 separations automatically.

All you need to do is save the images as separate PDFs for submission.

You may want to adjust your files slightly depending on desired results and colors you have choosed to use in your final work.

SUBMISSION GUIDELINES VIA DIGITAL STOREFRONT

DIGITAL FILES
You will be using our online Digital Storefront submission process. Below are general guidelines and a link to instructions on file naming and file upload with the DSF interface.

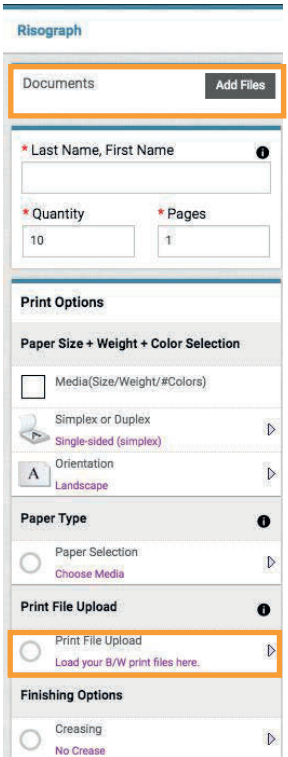
For print, artwork should be:
Flattened PDF (no layers or transparencies.)
Set to Graysale / B&W
Resolution = 300dpi
Each color layer saves as a separate file.

Because of the nature of Risograph, the number of files needed for printing and the limitations of our Digital Storefront we are going to require our users to name their files in a specific way when submitting.

Please follow the link below for detailed instructions on file naming. If you submit without following our naming conventions we will ask that you resubmit which may result in your job being delayed.

Riso Submission Guidelines

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



Documents/Composite File Upload: Here is where you will be uploading the color composites of your files.

DO NOT UPLOAD print files in this location as it will affect the overall price.

Last Name, First Name

Our minimum quantity is 10. Because of the way Riso works we do not allow for tests. If you would like to try a few different types of paper as your 10 please note that in the special instructions.

Media (Size/Weight/Color): Choose the size, number of colors + weight of paper you are using in your job.

Simplex/Duplex: Be sure to choose the correct Single Sided or Double Sided. This will affect your final price.

Make sure the orientation looks correct here.

Paper Selection: This is the type of paper for your job.

Print File Upload: Adding your print files here.

For each individual piece (poster, booklet, card) you will start a new job adding them all to your cart for a total price. You will load your composite under the ***Documents*** area.

DO NOT LOAD your composite file here as it will affect the overall price.

BLUE
YELLOW
RED
TEAL
PURPLE
BLACK 50
BLUE
YELLOW
RED
TEAL
PURPLE
BLACK 25
BLUE
YELLOW
RED
TEAL
PURPLE
BLACK 100
BLUE
YELLOW
RED
TEAL
PURPLE
BLACK 75

HELPFUL LINKS + TUTORIALS

Software Tutorials:

Olivia + Pindot You Tube Channel
https://www.youtube.com/channel/UCpz-5TuvqI2ur0IP62kI6AQ
Rissolve Studio
https://risolvestudio.com/pages/file-set-up

Spectrolite:

Spectrolite is a Mac desktop app by ANEMONE to make colorful risograph prints and zines more easily.
https://spectrolite.app/

The Risograph Revolution in Chicago and beyond:

www.art.newcity.com/2014/06/19/eye-exam-chicagos-risograph-revolution/
www.desktopmag.com.au/features/the-rise-of-the-riso/#.WNJ4EhLyuqA

A few of our Riso friends:

Clay Hickson - www.clayhickson.com
Perfectly Acceptable - www.perfectly-acceptable.com
Issue Press -www.issue.press

Riso Wiki - wwwstencil.wiki

37 S Wabash
room 1111

p: 312 629 9155

e: servicebureau
@saic.edu

w: sites.artic.edu/
servicebureau