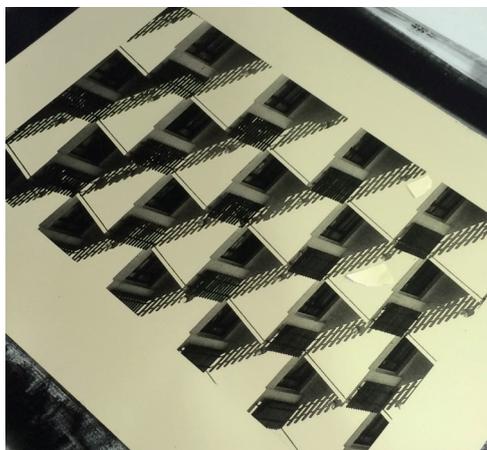


# Lithography

## Photolithography Platemaking

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Litho plate with a photographic image.



Print from a plate developed with Tru-Grain film.

### Tip

Both with digital and hand-drawn films consideration of the press should be taken into account before creating your films.

For printing on the Deffa offset press your artwork will need to be flipped horizontally so that the image mirrors the imageable area across a vertical axis.

### Introduction

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Photolithography works on the same principle as traditional lithography in that oil and water repel one another. The oil-based ink sticks to image areas of the plate and is rejected by the water/gum arabic saturated 'white' areas. Photolithography can be used to implement photographic imagery as well as Autographic (hand drawn/painted) imagery as the image is created on a transparent film and transferred to the plate through exposure to ultraviolet light. The plate is then developed using a photo developer solution.

### Photographic/Digital

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Photographic imagery needs to be converted to grayscale and printed onto colour separation film. Depending on the type of photographic imagery you are using and the results you wish to achieve it may be necessary to translate your image into halftone or bitmap image.

When creating your digital imagery it is important to set the canvas size to the same size as your plate and you must ensure you leave at least a 3cm margin around the edge of your image.

For more information on creating halftone and bitmaps see the '[Films From Digital Sources](#)' guide.

### Autographic

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There are 2 types of film that can be used for drawing; Tru-Grain is a coarse toothed film that is good for producing images with a lot of texture and creating washes. Single Matt Film has a finer tooth and is good for line work and producing images with dry media. It does not hold wet media well and requires a long drying time for materials such as Indian Ink.

Delicate washes are more difficult to expose and therefore print. Solid areas and textures usually expose well and are usually easy to ink and print.

Your film should be cut to the same size as your plate and you must ensure you leave at least a 3cm margin around the edges of you drawing. A wide variety of drawing materials may be used on either films.

For more information see the '[Autographic Films For Printmaking](#)' guide.

## You will need

- Large Cutting Mat
- Stanley Knife (with new blade)
- Sanding block
- Cutting Ruler

Plate Size	Max Print Area
960 x 750mm	*900 x 670mm
770 x 515mm	710 x 450mm
630 x 515mm	570 x 450mm
770 x 343mm	710 x 280mm
515 x 385mm	450 x 320mm

\*Can only be printed on the Offset press.

## Cutting The Plate

The positive photolithography plates should only be cut to the 5 standard sizes as per the table below.

To cut the plate to size:

01. Lay the photolitho plate emulsion side down onto a clean and smooth cutting mat in the exposure room.
02. Measure and mark the plate on both edges to ensure you cut the plate square.
03. Line up the cutting rule to your marks and using a Stanley knife with a fresh blade cut it 2-3 times.
04. Lay the plate over the edge and bend the over arching side down until it snaps.
05. Smooth the edges and corners with a sanding block as they can be sharp and cause injuries or damage the rollers or press blankets.

## Exposing The Plate

01. Ensure the exposure unit glass is free from dust or dirt, clean it with Mr Muscle and a clean blue J cloth if required.
02. Position your film face up on the centre of the glass.
03. Carefully place your plate face down onto your film, lining up the edges of the plate to that of the film.
04. Close the lid and secure the latches and set the desired exposure time for the type of film you are using (see the table below as a guide).

Film Type	Exposure Time (light units)
Laser Acetate	84
Colour Transparency Film	88
Single Matt Film	90
Tru-Grain	94

05. Turn on the vacuum switch and wait for the rubber blanket to fully 'inhale'. Then press the green start button.
06. Once the exposure has finished, turn off the vacuum and release the latches, wait for the rubber blanket to fully exhale before carefully lifting the lid.
07. You are now ready to develop your plate. Please remember to remove your artwork from the exposure unit and close the lid.

### Tip

It is always best to make a test exposure strip on a small offcut of plate before exposing your full image. This is particularly important with fine washes or tones in hand drawn films and when using the drafting film.

# Lithography

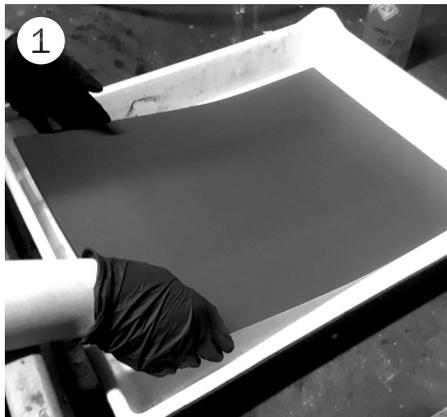
## Photolithography Plate Developing

### You will need

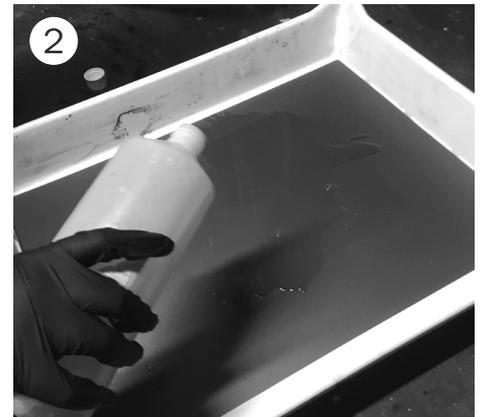
- 50/50 mix photo developer
- Nitrile rubber gloves
- Eye protection
- Newsprint
- Developing Tray
- Hairdryer
- Blotting Paper

### Health and Safety

The photo developer is a mild corrosive. Always wear an apron, blue nitrile gloves and safety goggles when handling it.



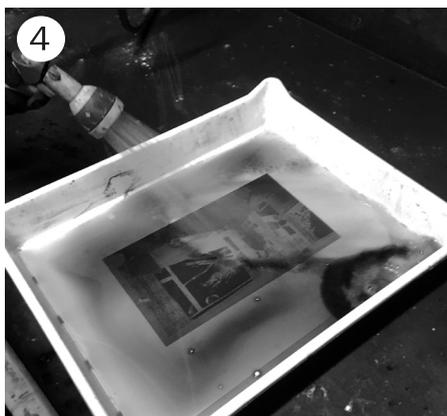
1 Put on gloves and safety goggles and place the plate face up in the developing tray.



2 Pour a generous amount of 50/50 developer solution into the tray and quickly begin rocking the tray back and forth and side to side.



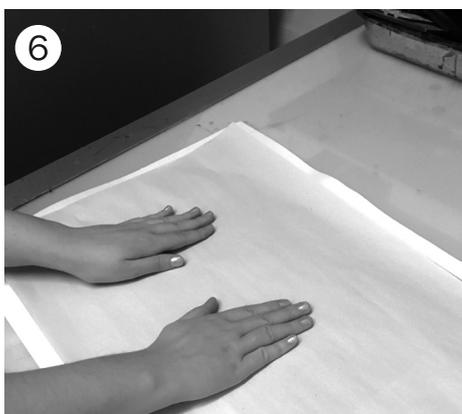
3 Continue to agitate the tray for approx. 1 minute to ensure a thorough and even development of all areas.



4 Rinse both sides of plate well with water to remove all the developer so it doesn't continue to develop and burn out your image.



5 Lift the plate out of the tray and holding by a corner let the excess water drain off.



6 Place the plate on a sheet of Blotting Paper and quickly blot the surface with a couple of sheets of Newsprint. **Do Not Wipe The Plate!**



7 Dry the plate completely with a Hairdryer. Your plate is now ready for gumming.

Clean away any mess or spills.

Rinse out the tray and sink

Dry and put away all utensils and trays.

Throw away any rubbish in the bins provided.

### You will need

- Cotton Buds
- Nitrile rubber gloves
- Eye protection
- Erasol
- J Cloth
- Hairdryer

### Health and Safety

Erasol deletion fluid is corrosive. Always wear blue nitrile gloves and safety goggles when handling it.

### You will need

- Clean Sponge
- Clean Cheesecloth
- Gum Arabic
- Hairdryer
- Nitrile rubber gloves

## Deletions

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If you have spots on your plate you don't want to print, you can use Erasol deletion fluid. Make sure your plate is completely dry - otherwise the deletion fluid will bleed into your image.

01. With a clean cotton bud, apply a small amount of Erasol to the area you want to delete.
02. Leave it to stand on the plate for 30 seconds before very gently rubbing it, the spot should begin to dissolve. Apply a little more and repeat if necessary.
03. Using a damp cloth to remove the Erasol by wiping it away, being careful not to drag it into the image area you don't want to delete.
04. Make sure all the deletion fluid is removed and rinse and completely dry the plate as before.

## Gumming And Print Preparation

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Prior to printing or storing your plate it is necessary to gum the surface. This serves two purposes; protect the plate surface from oxidisation and; aids in the inking up of the plate when printing.

01. Place your plate on a clean ink slab. Pour about 1 tablespoon of gum arabic onto the plate and gently spread it over the whole of the plate using a clean sponge.
02. Use cheesecloth or a soft cotton rag to buff the gum arabic down to a thin even layer - there should be no streaks or blobs of gum left on the surface of the plate.
03. Use a hairdryer to dry the gum - it shouldn't be sticky when you run your fingers over it.
04. Ensure the Ink Slab is completely clean and free from gum residue, thoroughly wash out the gum sponge and cheesecloth and hang them to dry
05. You are now ready to print your plate, or store it for later printing.

If storing your plate always wrap it in newsprint to protect it as the plates can be easily damaged.

## Printing

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It is possible to print Photolithography plates on the Hunter Penrose Littlejohn etching press or the Deffa No.8 offset press.

Please see the separate guides 'Direct Printing Photolithography Plates' and 'Offset Printing Photolithography Plates' for further information on paper preparation and printing.