Screenprint

Introduction

Improvements in ink technology have meant that water-based screenprinting systems have gradually begun to replace the old solvent-based ones. As a result screenprinting has become much less toxic to use and therefore more accessible. Nowadays screenprinting can be done quite safely anywhere provided there is enough space and adequate wash-out facilities. In many ways it is the ideal medium through which to introduce young people to printmaking, because it combines simple technology with versatility and yet ensures instantaneous and striking results. It is of course still used widely in industry as well as fine art.

These notes are intended to outline techniques that use a minimum amount of specialist equipment and materials. They are intended as a low-tech solution to printing with screens.

Materials and Equipment

What you will need:

Screens — Screen mesh comes in different densities. A fine mesh will have smaller holes and therefore allow for more detail. A coarse mesh will not have so much detail but will lay down more ink. As a general guide 120*t* mesh (usually coloured orange or yellow) is used for printing fine detail whilst 90*t* mesh (usually coloured white) is good for general printing, including textiles. Always choose screens to match the size of the wash out-facility.

Squeegees — Squeegee rubber comes in varying shores (softness/hardness). The standard shore for most types of printing is 70 - 75 which is usually green in colour. It is extremely important to take the utmost care of the squeegee blades as any damage or build up of dried inks can have a significant effect on the print. They are also very expensive.

Acrylic inks — Daler Rowney System 3 Screenprinting Medium used in combination with acrylic paints are the best value for money and perfectly adequate for student use. These are mixed at a ratio of 50:50 and can be stored in airtight containers once mixed. The medium is available in two form, for use with textiles or paper.

Wash-out facilities — Adequate wash-out facilities are essential because dried inks left on screens can permanently block them. The wash out facility can be an ordinary sink but must be large enough to contain the screen. For particularly stubborn blockages or stencils a pressure hose may be required. This can be used outside if there is not the facility inside.

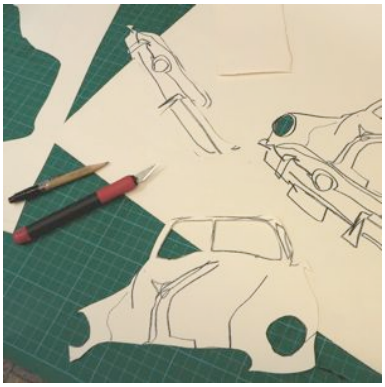
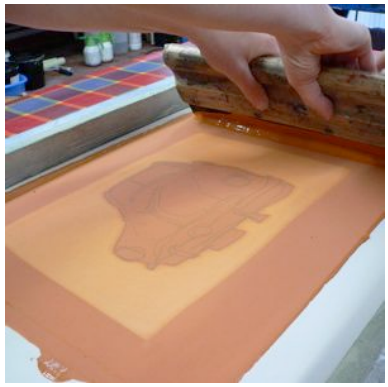
Newspaper	For protecting surfaces and soaking up excess water when cleaning screens in situ.
Clean rags	For cleaning screens in situ.
Warm soapy water	For cleaning screens in situ.
Cake spreaders	Soft rubber spatulas used for cake making are ideally suited for mixing and applying ink to the screen.
Print surface	A smooth uninterrupted surface is needed as a printing area. Any inconsistencies beneath the print can show in the results. Screenprinting is space hungry. Adequate space must be provided to allow room for the screen, the squeegee and the inks. Poor organisation and lack of space can result in work being needlessly spoilt.
Drying Area	Acrylic inks take very little time to dry, but must not be allowed to dry in contact with anything else. Sufficient space or a drying rack should therefore be provided.
Hinge system	A system that allows the screen to be hinged temporarily to a drawing board will mean that accurate registration is possible. This is achieved by printing the image first onto a sheet of transparent acetate which is itself hinged to the board. When this has been done the paper can be arranged beneath the acetate before this is folded back and the screen lowered into position.

Projects / Context

Screenprinting is a technique that lends itself naturally to the process of **layering**. In textiles it is often used in conjunction with coloured or patterned **backgrounds** and in fine art printmaking, different colours are overlaid to produce multi-coloured prints.

Screenprint is also excellent for printing onto a variety of **different materials** as long as there is a relatively flat area on which to print. This can open up a number of different possibilities including printing over pre-prepared **collages** or onto unusual textiles or plastics. The relative ease with which prints are pulled means that **repeat patterns** can be created fairly quickly.

Paper Stencils


Using paper stencils to mask out areas of the screen is one of the simplest forms of screen-printing. Any paper that will cling to the under side of the screen is good to use but a medium weight cartridge paper has been found to be robust and highly effective. Cartridge paper should give a run of up to about thirty prints until the stencil starts to degrade. Paper stencils can be used as a process in itself or as a quick way to get broad background colours.

To make a hand cut paper stencil:

1. If you are planning to use multiple layers it is important to think hard about each of these stages. A screenprint will generally be printed so that the first area is the most inclusive. Subsequent layers will cover over the ones underneath, gradually building up areas of opaque colour or tone until the entire image has been assembled.

2. Using a master drawing, trace or photocopy a number copies onto cartridge paper.

3. Cut each stencil with a scalpel and remove areas intended for printing.

4. Beginning with the first stencil (the most open for background areas) carefully layer the pieces down on top of some paper. Take the screen and gently lower it over the stencil. It should be possible to see the stencil behind the screen.

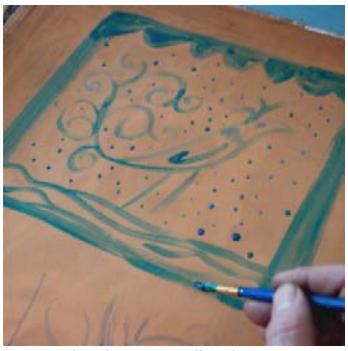
5. Use masking tape to adhere the paper stencil to the screen mesh.

6. Because the stencil is essentially temporary it is recommended that as many prints are taken as possible. Paper stencils cannot be left on the screen, as the act of washing the mesh will inevitably remove the stencil. The screen must be washed after each session to prevent it from being blocked permanently by the acrylic.

7. Once the stencil starts to bleed or cockle it is time to stop. The screen should now be washed and dried in preparation for the next stencil layer.

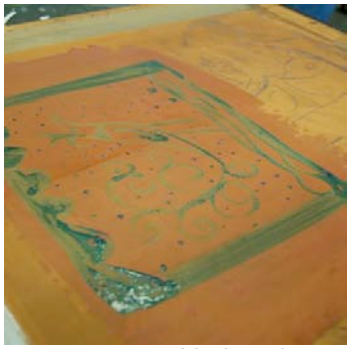
Screen Block

The use of water based drawing fluid in conjunction with screen blocking medium allows accurate and expressive stencils to be created by hand. This is a simple process and a welcome low-tech solution to the difficulty of creating removable but long lasting stencils directly on the screen mesh. Its one disadvantage can be in the difficulty of removing it afterward.


1. Apply drawing fluid


2. Apply screen block


3. Squeegee screen block


4. Leave screen block to dry


5. Wash out squeegee


6. Dried out screen block


7. Wash-out drawing fluid


8. Check fluid is washed out


9. Tape out screen

To apply a hand drawn screen block stencil to the mesh:

1. Place a drawing beneath the screen to use as a guide or sketch out the design on the screen using a soft pencil.

2. Paint the design directly onto the screen with water based screen drawing fluid.

3. Allow the screen drawing fluid to dry completely on the screen.

4. Apply a generous amount of screen block in a line at the bottom of the screen.

5. Hold the screen away from the work surface and squeegee the screen block evenly in a thin layer over the design.

6. This can only be done once so must be achieved in one go. A generous amount of screen block is essential to ensure adequate coverage and a firm pressure on the squeegee will result in a thin and even layer on the screen.

7. Wash squeegee with soap and water.

8. Allow the screen block to dry thoroughly on the screen.

9. Wash the screen gently so that the drawing fluid is washed out leaving the screen block stencil in place.

10. Check the screen stencil and leave to dry.

11. Tape up the all other open areas on the screen.

To remove the stencil:

1. Place the screen in the wash-out unit and warm with hot water.

2. The stencil can then be cleaned off with soap and water.
3. To do this use a strong form of soap such as powdered Flash dissolved in water. Coat both side of the screen and leave to stand for ten minutes. A stiff brush and hot water will help to scrub the stencil away.

4. Finish with the pressure hose to remove stubborn areas.

Printing

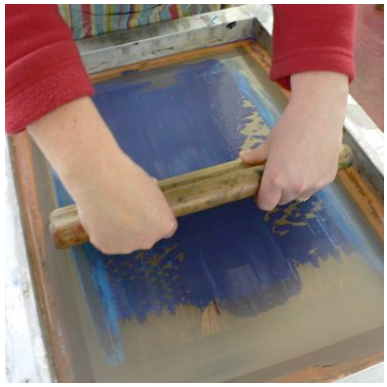
Before printing, the screen will need to be prepared by taping out any areas not covered by the stencil. These areas are usually to be found around the edges of the screen but can be faults in the stencil that need to be blocked out. Taping should be done on the back of the screen to avoid interfering with the movement of the squeegee. It is recommended that paper gum strip be used as it is easily removed, however good quality parcel tape is often preferred as it is not automatically removed in the wash-out stage. It should be noted that poor quality parcel tape can be extremely difficult to remove.

To print:

1. When the screen has been prepared raise the screen off the print surface by propping it up with a piece of wood.

2. Spread a line of ink generously along the bottom of the screen a little wider than the image.

3. With the squeegee, gently flood the screen by pushing the ink back so that it covers the image and fills the mesh evenly. Do not push ink too hard against the mesh as this will result in ink being forced through the mesh and gathering on the other side.


4. Remove the prop and lower the screen over the paper.

5. Hold the squeegee firmly in both hands to ensure an even pressure.

6. Position the squeegee at the far side of the stencil at about 45 degrees and pull it across the screen so that it scrapes tightly over the stencil.

7. Listen to the sound of the squeegee as the sharp edge of the rubber scrapes along the mesh. It is important that this sharp corner edge of the squeegee rubber be the contact point. If the squeegee is pressed too hard the rubber will bow and ink can be forced behind the stencil on the other side of the screen. If this happens it will need to be cleaned and dried before continuing.

8. Once a print has been taken it is good practice to flood the screen immediately afterward in preparation for the next print. This will ensure that the screen is not left with small traces of ink on it which can lead to the inks drying on the screen causing blockages.

9. Water-based acrylic inks tend to dry much quicker. This can present considerable problems if the atmosphere in the studio is hot and dry. Always be on the look out for blockages caused by dried up ink and have to hand a bowl of soapy water and a sponge with which to clean the screen in situ. To do this, place a pad of newspaper underneath the screen and have a clean rag ready to dry it off with. (The screen can of course be washed down in the wash out area but this would mean a lot more drying).

Screen Monotype

One off prints can be achieved very easily in screenprint with the minimum amount of preparation. This is done in one of two ways:

Painting with the inks:

1. Tape around the edges of the screen to define the print area.

2. Apply screen inks directly to the front of the screen with a brush or spatula.

3. The screen must be entirely covered with ink or transparent medium to prevent colours from splurging into untouched areas. For areas that do not require colour cover using transparent medium.

4. Take a print as normal.

5. Only the inks that are embedded in the screen mesh will print. The rest will be mixed together.

Printing a drawing or water colour:

1. Tape around the edges of the screen to define the print area.

2. Use charcoal, soft pencil or water-soluble pencils/crayons to draw directly on the front of the screen. Do not use chalk pastels as they are abrasive and will wear away the screen mesh.

3. Use water colour to paint washes or layer colours directly onto the front of the screen then allow the painting to dry.

4. Gently flood the screen all over with transparent acrylic screenprinting medium and leave for about 2-3 minutes.

5. Pull the print.

6. The medium will be streaked with colours so cannot be used again. However the tinted medium may be kept for mixing again with black.

Always wash screens thoroughly before leaving them. Acrylic inks that have been left to dry on a screen or squeegee can be extremely difficult to remove.

Further information

Hoskins, Steve, Water-based Screenprinting, Published by A & C Black Printmaking Handbooks

Fortune, Dave, The Art Teachers Guide to Water based Screen Printing, published by Daler Rowney

Adam, Robert and Robertson, Carol, Screenprinting: The Complete Water-based System

www.clothofgold.org.uk

Suppliers

- Many schools suppliers deal with Daler Rowney products such as Specialist Craft www.specialistcraft.co.uk.

- For Specialist Printmaking supplies see www.intaglioprintmaker.co.uk or www.lawrence.co.uk

- For industrial screenprintng supplies in Cardiff or Bristol contact Gibbon Finecal on 0117 977 4343 or 029 2046 2644 or www.finecal.co.uk/gibbon.asp

- For textiles and screenprinting supplies see www.ario.co.uk or www.selectasine.com