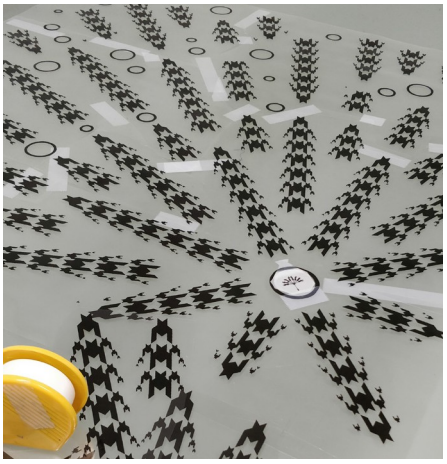
Screen Printing Steps

1. Coating the screen



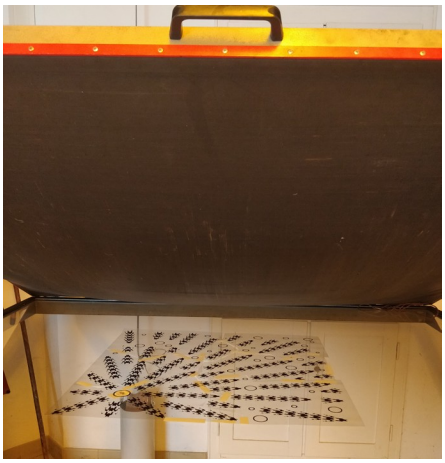
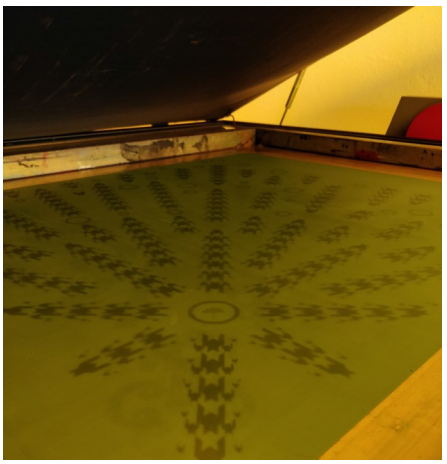
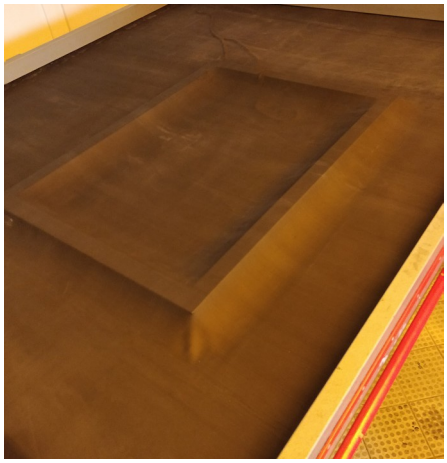
The screen fabrics are coated on both sides with the light-sensitive emulsion using a coating trough. Start with the print side. This is the side of the screen where the fabric is glued to the aluminium frame. When printing, the screen lies with this side down on the printing table. Then, by coating the squeegee side, the emulsion is pressed back into the mesh of the fabric. The squeegee side is the side on which the squeegee is used during printing, i.e. the ink is pressed through the fabric.



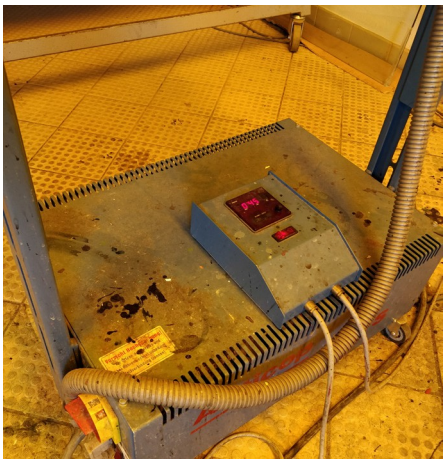


Positive, opaque-painted, labelled, pasted, transparent foils or tracing paper on a scale of 1:1 serve as print templates. What is to be printed must be applied to the translucent carrier. Chalk, ink, pen, pencil, brush, marker or similar can be used for this. You can also use copied or printed transparencies or tracing paper of the right size. A pattern and therefore also a screen must be prepared for each print colour.

2. Exposure of the screen

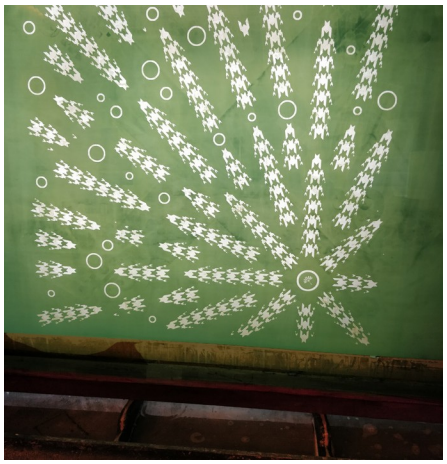
When the emulsion has dried, the printing stencil, the printed image on the screen, can be created. The print templates are placed the right way around in the middle of the glass plate of the vacuum frame. The screen to be exposed is placed on the print template. There must be a sufficient distance between the edge of the printed image and the screen frame (approx. 15 cm). Then the frame is closed. After the frame is closed, a motor sucks out the air between the rubber blanket and the glass plate, creating a vacuum and pressing the foil and screen together (contact print). For exposure, the vacuum frame with the glass plate is swivelled in the direction of the halogen lamp. The vacuum is maintained!


Exposure to ultraviolet light makes the emulsion that the light hits water and solvent resistant. The drawing on the film prevents exposure of the emulsion to the areas behind it. These unexposed areas are still water-soluble. The exposure time is set on the electronic exposure timer. The exposure time depends on the mesh fineness of the screens used (at least 45 seconds for 100 mesh, 1:20 min for 48 mesh, 1:40 min for 32 mesh).

3. Development of the printing stencil



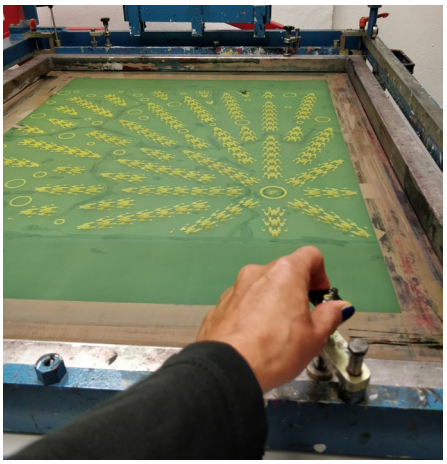


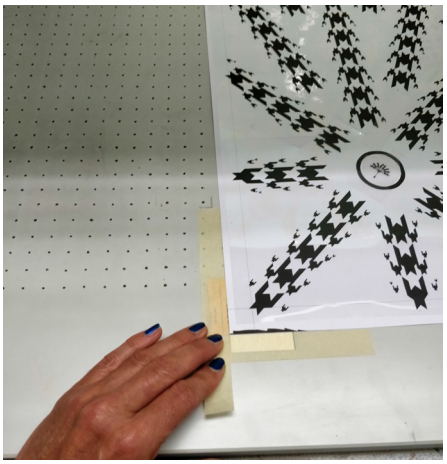
After the screen has been exposed, the print image, the printing stencil, is developed in the washout basin. The unexposed emulsion is washed from the fabric. The remaining screen fabric remains sealed. The screen is moistened with water on both sides, wiped over the entire surface with a sponge and then rinsed with normal water pressure. The printing stencil is prepared in the screen: printing (yellow, translucent) and non-printing (green, opaque) areas.
The moisture is removed with a cloth and the screen is dried lying down in the drying cabinet.

4. Print preparation and printing

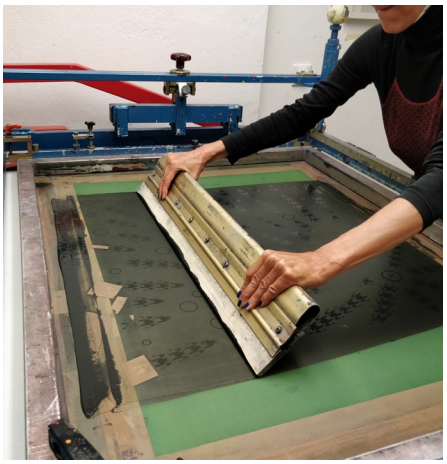


Translucent, open areas in the screen that should not print are sealed with a brush and emulsion. When retouching, the screen lies with the fabric facing up. The newly applied emulsion must be made waterproof by burning, otherwise, the retouching would dissolve again due to the water-based printing ink. The screen does not have to be placed in the vacuum frame. It is leaned against the raised frame with the retouched side facing the lamp and then exposed for 2 minutes. Printing can then begin immediately; the screen no longer needs to be washed.





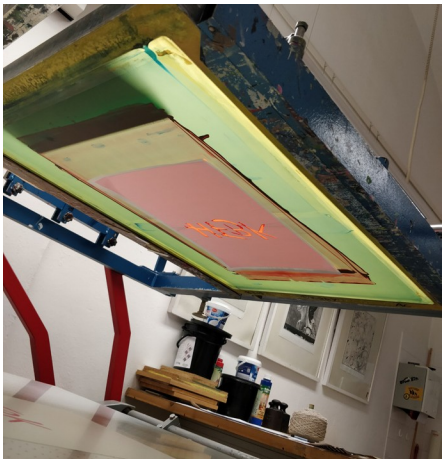
For printing, the screen is placed on the two blue rails of the mother frame and fixed with the 4 set screws. The first thing to do is to find the position on the printing table where the printing paper must lie so that the prints on the various sheets of paper are always in the same place. To do this, you stick your print template with adhesive tape on the proof sheet where the print image should be and then slide both under the screen until the print image and the print template are exactly on top of each other. You mark 3 positioning points, two as a corner and a mark on the long side of the paper to position the individual sheets of paper. This register mark corner is provided with a small sign on the proof sheet. For all further print runs, the same corner in the paper must always be used for the layout so that the different colours are then positioned correctly in relation to one another.

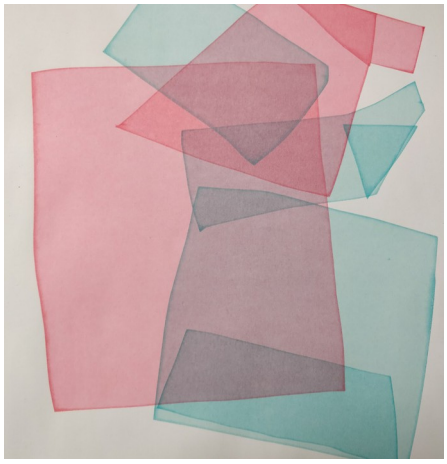




The squeegee used for printing must be 3-4 cm wider on the left and right than the motif in the screen. You need plenty of ink on the screen. The paper to be printed lies under the screen. First, the screen is flooded, i.e. the paint is spread over the screen with the squeegee without pressure. For printing, the squeegee is placed about 2-3 cm above the printed image and the ink is then pressed slowly and evenly through the open mesh of the printing template onto the paper without hesitation. The squeegee angle should be around 70°. The flatter the squeegee is held, the more ink is pressed through the mesh and the more likely it is to smear outside the printed image. After printing, it is flooded again immediately so that the ink remaining in the screen does not dry up and close the mesh. The printed paper is placed in drying trays.

5. Printing with masks


One way to print without an exposed screen is with paper masks. To do this, the areas that are to be printed are cut or torn from thin paper. This mask is placed in the correct position on the proof sheet. The masking paper blocks the way for the ink to reach the printing paper, which is why only what has been cut out is printed.

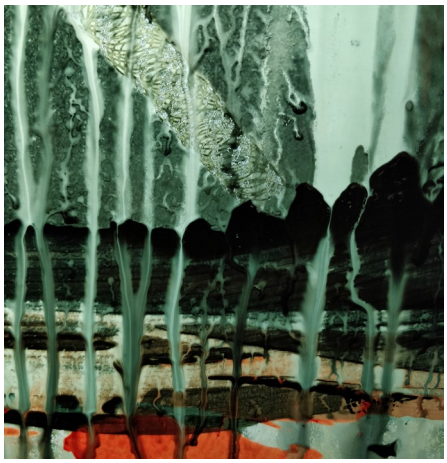


After the first print, the mask sticks to the underside of the screen, the print side. This is the basis for being able to make a print run. In the case of multicoloured prints with masks, the background colours must be dry, otherwise, the mask will stick to the wet ink on the paper and not to the screen. Only when printing with masks does one have the effect of a thicker and therefore darker colour edge due to the height of the mask paper. Stencilling is suitable for large areas where defects and inaccuracies are not a problem, but not for printing exact shapes or thin lines.

6. Cleaning the screen





After printing, the screen is cleaned. The ink should be completely removed from the screen. To do this, the screen is wet from both sides, rubbed down with a sponge and detergent dissolved in water and rinsed off. In the case of inks that dry very quickly, the water pressure must be increased to avoid strong ghost images, which are coloured threads in the fabric. (Kärcher with minimum water pressure)

7. De-coating the screen



To remove the stencil, both sides of the screen fabric are sprayed with the de-coating chemical, which is then rubbed in with a thick, solvent-resistant brush. When the emulsion begins to dissolve, the fabric is sprayed freely from both sides with maximum increased water pressure (switch on the Kärcher, wear hearing protection). You start with the pressure side of the screen, i.e. the one on which the fabric is stretched. The clean, dry screens are then available for a new printing cycle.