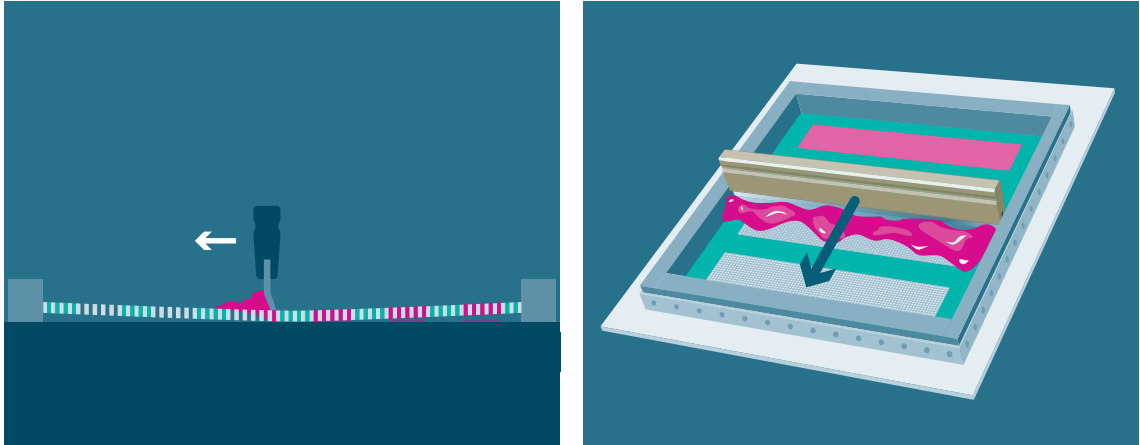


Screen printing



Principle of screen printing.

Screen printing is best described as a stencil method. It is used to print on very stiff substrates that other presses cannot handle. Some screen presses are also capable of handling large formats. These two factors make screen printing on paperboard ideal for display materials.

The basis of the screen printing system is a frame that is covered with a fine net called the mesh. On this mesh a photosensitive film is applied. The image – the stencil – is put on top of the film and after that the whole frame is exposed to a light source. Where the film is exposed to light – i.e. in the non-image areas – it hardens and seals the holes in the mesh. In the developing stage the film is removed from the image areas. The ink is allowed to penetrate the mesh and thus reproduces the image.

The ink is applied at one end of the frame and is then raked over the mesh with a squeegee applied on the flood bar. The thickness of the mesh and stencil determines the thickness of the ink layer. The hardness and angle of the rubber squeegee determine things like dot gain. In comparison to other printing methods, screen printing produces a much thicker layer of ink, making it more resistant to scratches. The ink is also less sensitive to sunlight compared to other printing methods.

Pros and cons of screen printing

Pros:

- suitable for printing on substrates thicker than 1 mm
- more suitable than other methods for formats larger than 720 x 1020 mm
- small editions (as small as 1 to 50) can be printed at reasonable cost
- light-resistant ink layer that does not deteriorate from sunshine
- ink and varnish layers are extra resistant to wear
- little or no waste of paperboard

Cons:

- not suitable for high screen ruling (above 100 lines/inch)
- less extensive tone scale than other printing methods (reproduces bright daylight and shadowed areas poorly)
- most printers do not use multi-colour machines, which makes register in multi-colour jobs complicated
- matching colours to previous production is complicated.

Key paperboard features

Whiteness is crucial for achieving excellent graphical presentation. Smoothness and flatness are even more important than in other printing processes. Since screen printing is a direct printing method and thereby sensitive to loose particles and debris, a clean surface is essential.