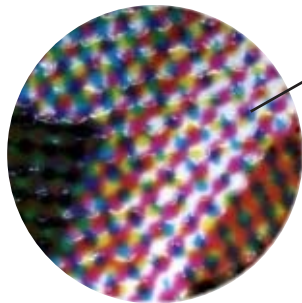


Autotype Capillex CP

Capillary Stencil Film

**Controlled Profile Capillary Film
for Critical Process Color and
Fine Detail Screen Printing**



Autotype Capillex CP: The Ideal Stencil for the Fin

Producing the ideal stencil for high line count process color and very fine detail can be a difficult balancing act between the stencil's EOM (profile) and its Rz value (surface roughness). You shoot for a very thin stencil to avoid ink piling (see Back Cover), but you also strive to produce a relatively smooth stencil surface to avoid edge faults in the printed image.

Unfortunately, achieving one of these objectives often presents big challenges in achieving the other. For example, a very thin stencil is ideal for printing halftone dots with UV-curable ink, yet most thin stencils tend to be too rough; their Rz value is too high. The solution to the surface roughness problem is to add more coats of emulsion, which smoothes out the coating, but makes the stencil too thick, which leads to ink piling, skipping and stacking.

Autotype CP from MacDermid Autotype was the first stencil film to address this persistent and difficult screen making challenge. This unique capillary film is specifically formulated for fine halftone and line printing. It produces a *controlled* stencil profile over a wide range of meshes over 305 threads per inch, with the Rz values required for the best image acuity. Autotype Capillex CP is the best route to producing the ideal stencil -- the stencil with the optimal balance of surface roughness (Rz value) and EOM (stencil profile). It is designed to produce repeatable stencil thicknesses and Rz value with much greater ease and consistency than with any other type of stencil -- emulsion or film. The low stencil profile and optimized Rz give superb dot reproduction and help to minimize dot gain and loss (stacking and skipping) that result from excessive UV ink pile height.

Product Applications

Autotype Capillex CP has been designed to produce the ideal combination of stencil profile (EOM) and Rz (surface roughness) for UV halftone and process color printing. It is also an excellent film for printing critical fine-line work. Target applications include: all types of graphics screen printing applications, fine art reproductions, glass and ceramics printing, and industrial applications such as nameplates, overlays and membrane switch components.

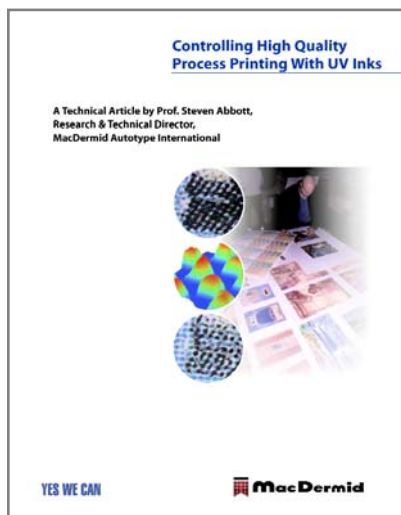
Autotype Capillex CP Features and Benefits

Feature	Benefit
Low stencil profile (EOM)	Ideal for minimizing the ink pile height that causes printed dots to 'skip' and 'stack', a known cause of tonal shift and compressed color gamut in printed images . Reduced ink usage and cost.
Optimized stencil surface (Rz)	The low, microtextured Rz value is engineered into the film and improves image acuity. This makes a thin dot a <i>well-defined</i> dot as well.
Controlled profile	Enables higher line count process color printing. Optimizes the printable color gamut and tonal range Minimal screen-to-screen variability means predictable and repeatable results over a range of mesh counts (different screen making production techniques are not needed within the recommended mesh range.) Shorter setup times, drastically reduced screen remakes and less wasted substrate
Wide exposure latitude	Trouble-free exposing without compromising stencil performance.
Easy washout	Faster clearing of fine details; edges wash clean without high pressure.

Best Detail and Process Color Printing

Autotype Capillex CP Technical Specifications

Property	Specification
Compatible Inks	UV-curable and solvent-based graphics inks
Mesh Range	305 - 455 threads per inch; 380 tpi optimum
Humidity Resistance	Very good
Water Resistance	Low. Not for use with water-containing inks
Solvent Resistance	Excellent
Image Resolution and Print Definition	60-micron resolution at optimum exposure; 40-micron at 50% optimum exposure; Excellent printed edge definition
Estimated Exposure Time	Moderately fast; 3 minutes on a 5KW metal halide exposure unit at 48" distance
Stencil EOM (profile)	3 microns or less, within the specified mesh range
Stencil Rz (surface roughness)	Built-in high frequency random micro texture @ 5-7 μ ; on 305/31 mesh, measured at 6-7 μ ; on 380/31, measured at 5-6 μ
Stencil Removal	Reclaims easily with Autotype Autostrip. Pressure washer recommended.
Packaging Availability	Rolls: 24"x394"; 41" x 394"; 48" x 394"; Custom cut sheets also available



A Screen Printer's Guide to Ink Piling and Its Effects on UV Process Color Printing

Autotype Capillex CP was developed to address the problems created by the ink skipping and stacking that result from UV ink piling, a phenomenon that was unearthed in during joint research project conducted by Autotype International, Ltd., and the University of Wales (Swansea). Prof. Steven Abbott, Research and Technical Director for MacDermid Autotype Intl., participated in the research and has written this easy-to-follow technical article that clearly identifies the problems, causes and solutions for some of the most persistent imaging problems faced by UV process-color screen printers.

To request your free copy of the article, "Controlling High Quality Process Printing With UV Inks"; contact MacDermid Autotype at 800-323-0632.

Why a Controlled Profile Stencil Matters

The Effects of UV Ink Piling on Image Reproduction

UV Ink Pile Height

As ink builds during a print run, "ink pile height" begins to interfere with image quality, in the form of skipping and stacking (below). A white light interferometer scan shows the surface texture of substrate, screen printed with a 50% halftone using UV ink.

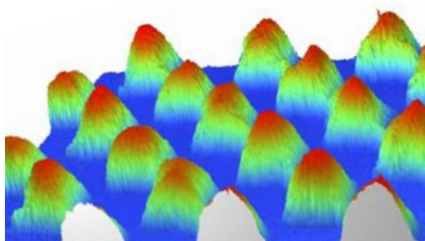


Figure 1. UV ink pile height

Ink Skipping

Previously printed dots can interfere with ink transfer, causing a phenomenon known as skipping. The dots become dissected into a "puppy paw" pattern and from a normal viewing distance, the image looks spotty and very unattractive.



Figure 2. Ink skipping

Stacking Gain

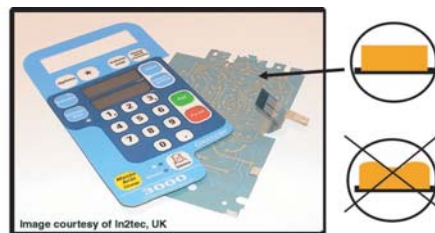
The magenta positive (with dots outlined in white) is overlaid on the print. This shows the severe amount of gain in the magenta print when printing dots on top of dots with a 100% solids ink.



Figure 3. Stacking gain

Controlled Profile Stencils for Critical Industrial Printing Applications

Uncontrolled stencil profile and surface roughness often lead to a different set of imaging problems and part failure with industrial printing applications that use coarser meshes. Membrane switch components, touchscreens and conductive circuits are critical applications that require superior edge quality combined with a specific ink deposit.



These critical industrial and electronics applications call for **Autotype Capillex CX from MacDermid Autotype**.

For details on this unique capillary stencil film, download the product sheet (in PDF format) at

www.macdermidautotype.com/



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