Screen and Offset Printing Guidelines

The comments which follow are intended as guidelines for film preparation for the screen printing process ***which are unlike offset printing processes.*** The quality of the printed product is dependent on the quality of the artwork or mechanical and the printing film prepared from them. ***All art is subject to review to assure it can be reproduced as a quality product.***

- **GUIDELINES FOR SCREEN PRINTING USING MECHANICAL OR ELECTRONIC ART:**

Media:

Currently we are accepting the following media: 1.4 MB floppy, 44, 88 and 200 MB Syquest, 100 and 250 MB Iomega ZIP, and 1 Gig Iomega Jaz, Compact Discs and files sent via e-mail*. With your art we require a black and white, color separated proof at 100% of the original size.

**Contact your Service Account Specialist for E-mail address.*

Software:

For submission of art electronic media, files can be created on a Macintosh system, however most programs are cross-platform compatible from the PC. Our pre-flight is performed in a PC format. However, we can work with Macintosh files off-site. CorelDraw files should be sent both as native Corel files and exported to Adobe Illustrator 10.0 eps files with type ***converted to paths***; this will allow us to open files and image them to our needs. Application programs that we prefer are: Adobe Illustrator, MacroMedia Freehand, QuarkXPress, Adobe PageMaker, Adobe Photoshop, and Adobe InDesign.

Set-Up/Size:

Art should be set up to the actual dimension of the product you have requested, meaning the document size in your application should be the final cutting size of your product. Do not set up document to bleed size. A composite of the product should be electronically supplied in one file, on one page. (*For example:* ***Binder:*** Back Cover / Spine / Front Cover, on one document page, ***Box:*** Top / Bottom / Sides / Front / Back, on one document page). This will ensure the proper placement of crop marks and avoid additional set up time. **If you are not sure of the dimensions please contact your customer account specialist.*

**Existing electronic dieline templates are soon to be developed to save time and additional art charges.*

Substrate Color:

We request that you do not stimulate the color of the substrate. If you want to simulate the substrate color for proofs, please be sure to remove any such colors before submission for printing to reduce additional charges or cause unnecessary delays in the production of your product.

Ink Colors:

Colors should be specified in the ink color you wish to screen: Pantone and spot colors when running spot colors or CMYK for four color process. RGB is used for monitor viewing only. If you have a Photoshop file in RGB, it must be converted to CMYK for *four color process printing* or if screening in *spot colors*, this image will need to be converted to a grayscale, duotone, tritone or bitmap. ***DCS files:*** (Desktop Color Separation Application files from Photoshop) If submitting DCS files, be aware that any spot colors specified in the file automatically overprints. If the spot colors touch or overlap any other colors in Photoshop or the image has been placed into another application program, the files will not be able to be trapped. When setting up DCS files with colors, remove any colors beneath or touching the DCS spot colors that would be undesirable to be overprinted. If white ink is to be screened, modify the PMS color 1555 to a spot color (Do Not Use CYMK), and change the name to **Printers White**. Use this color wherever white is to screen print.

Placed Images and Fonts:

It is essential that you send **all** placed images whether linked or embedded regardless of what application program it was created in. Nested eps images will not be accepted. All screen and printer fonts used in your document need to be sent. An option to sending fonts is to convert all type to outlines, however this will not allow us to make corrections to type if needed. Electronic styling from style palettes is not accepted. The correct font/typeface must be used.

Scans:

Scanned continuous tone gray scale or color images should have a minimum resolution of 300 ppi for screen printing and offset printing. This is at final, 100% screen printing size, not enlarged. If image is scaled, the appropriate corresponding ppi should be used. When enlarging, the image loses resolution and quality. Line art (Bitmapped) should have a resolution of 1000 ppi. (The same principle applies to bitmaps when scaling images). Please save as tiff or eps files. Picts, jpgs and Photoshop files with LZW compression on, will be resaved as tiffs or eps files when received.

Solid Panels and Tints:

Art designed with both solid panels and tints in the same color may require separate screen press passes. This is due to the different screen mesh requirements for solids versus tints. Some large coverage four color process jobs such as boxes, which print on all parts of the box, may require splitting the hits for registration purposes which doubles the passes through the press.

Type and Line Weight:

Minimum type size is 6 points. Type that does not bleed must be .0625" away from the die cut edge. The minimum line weight must be .65 points. This is at the final screen printing size, not reduced.

Bleeds, Mock Bleeds and Register Marks:

Allow .125" art extension beyond the trimmed edge for all bleeds. Bleeds should be restricted to .055 gauge or less. Over .055 gauge is susceptible to ink chipping on die cut edges. All art to be mock bled must be .0625" away from all cutting edges. All art must have crop marks, register marks, and be .125" beyond the bleed area.

Rivets:

Art must be .25" away from the rivet centers. Standard rivet heads are .3125" diameter.

Reverses:

Minimum type size is 12 points. Minimum line weight is 1.5 points. Type should be of medium or bold weight; light typefaces will not reverse. Reverses through two or more colors or reversing out of four color process colors is not accepted. An additional ink hit may be required.

Hinge, Cut and Sonic Weld Areas:

Art cannot be screen printed through hot scored poly hinges and may chip on cold scores. Breaks for hinges differ with gauge.

- .023 - .055 Gauge allow .1875" Break (Centered on Score Line)
- .075 - .180 Gauge allow .3125" Break (Centered on Score Line)

Art must be .625" away from all edges being sonic welded. Art must be .0937" from all cut and non-cut edges on tabs.

Screen Angles, Rulings, Dot Structure, 4-Color Process:

Halftones and tints for screen printing in one color must be prepared at 22.5º from horizontal to minimize the possibility of a moiré pattern appearing in the screened product. If two tint colors overlap, the lightest color should be set at 52.5º, and the darkest at 22.5º. A screen ruling of 65 or 85 line with a **simple round dot is required when screen printing halftones and tints. This determination will be made by us upon review of final art submitted.** You will need to specify the screen angle, line screen and dot structure settings as listed above to whomever will be imaging your film. For four color process screen printing, use 82.5º for cyan, 52.5º for magenta, 22.5º for black and 7.5º for yellow. (See figure 1) Most desktop computer programs have default screen angles, line screen and dot structure settings **which are specified for offset printing**. This means that if the angles are not changed at the imaging stage of production they will image incorrectly for screen printing needs. **It is essential that the screen angles, line screen and dot structure are changed at the imaging stage of production.** For proper reproduction, at least 2400 dpi is needed for output film resolution. For optimum results we prefer to provide four color process film separation service in-house or through a color separator of our choosing who is familiar with screen printing requirements.

- **A press proof is always recommended for all four color process screen printing.**

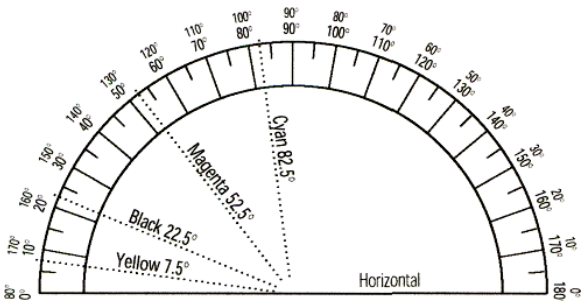
For those who choose to provide their own film, color separations may be made the same as any standard separation with the exception of 85 line screen and simple round dot. Films must be right reading emulsion side up positives, one piece per color with proper register and corner marks required. Furnished separation films must be accompanied with a layered color proof for direction at press. Layered proofs use standard dyes and are only a general indication of color to be printed.

Four color process screen printing is available on .035, .055 and .075 gauge white and natural poly. Any other poly color may be used but a panel of white link must be printed first behind the four color process inks. **Reversing out of four process colors is not accepted.** An additional hit of ink color may be required.

If artwork is inadmissible (i.e.incorrect resolution, rough art, wrong size, wrong screen angle), you will be given the option to resubmit artwork or charges required to make corrections. You will be notified.

Highlight and Shadow Range:

Halftone/Gradient films for screen printing should be made with a shortened tonal range of 15% instead of 0% (in highlight areas) to 85% instead of 100% (in shadow areas). All gradients will be screened at 65 line, the only exception being 4-color process.



Example shown with 0˚ set from left side of horizontal.

Figure 1

Ink:

Polyethylene:

- .014 Gauge – 1 Color Maximum
- .016 Gauge – 2 Color Maximum
- .019 to .023 Gauge – 3 Color Maximum
- .035 Gauge – 6 Color Maximum
- .035 Gauge – Minimum Gauge for Four Color Process
- .055 Gauge and Up – 6 Color Maximum

Up to six colors may be used, but no more than four colors may touch or overlap since there are curing limitations with UV inks. UV links are somewhat transparent. Light color ink may not cover a dark color ink or a dark color substrate well. An ink swatch can be provided for approval.

Polypropylene:

- .020 Gauge – 3 Color Maximum
- .030 Gauge – 4 Color Maximum

Trapping:

We prefer to apply trapping to your files as our needs are much different than that of offset printing. If you are going to submit film positives, a trap of 1 to 1.5 points should be applied. Different colors which touch each other must have adequate overlap (Trap) with lightest areas overlapping (Trapping) under the darkest areas to ensure good register. If you have questions, separate your file to a laser printer and fax them to your customer account specialist. Our prepress area will contact you with recommendations for your specific project.

Art for all Types of Dies (Cutting, Foil, Imprint):

Cutting dies must have .125" area between each metal die rule (or cut line), meaning any objects that are getting cut out, circles squares etc. must be .125" apart. All corners must have a radius of at least .0156". On foil or imprinting dies, type must be no smaller than 6 points. **Line weights must be at least 1 point size in width. This can change if foil stamping a large, solid area with it. Lines need to be at least 2 points apart.*

**These specifications are dependent on size and detail of artwork along with gauge and surface of substrate. All artwork is subject to review to ensure quality results.*

Pockets:

Pocket material will not adhere to ink. All art must be broken for the pocket seal. The art must be cut back .0625" to the inside dimension of the pocket and .25" from the inside dimension measured toward outside of the pocket.

Print-Image Register and Tolerance:

Screen Printing Tolerances are quite different than offset due to screen stretch and other variations.

- Color to Color: +/- .0312" (2.25 points)
- Color to Trim +/- .0625" (4.5 points)

Artwork must meet art guidelines and all submitted art will be validated and approved before an order will be entered. No purchase order will be entered until all specifications and artwork are received and approved. All product brand names are trademarks or registered trademarks of their respective holders.

- **OFFSET PRINTING**

For optimum results we prefer that the art is supplied to us on electronic media. Offset printing films and proofs have the same general requirements as films and proofs for screen printing with these additional guidelines:

Screen Ruling:

The best reproduction is achieved with 133 line screen or greater.

Separations and Screen Angles:

Conventional separation techniques and screen angles for offset printing films (your offset defaults) for reproduction on paper are acceptable.

Clear U.V. Coat:

All offset printed products have a final clear U.V. coat to improve ink rub resistance.

Miscellaneous:

- Bleeds should extend .125" (9 points) beyond the die cut edges.
- All crop marks, register marks and color bars must be outside the .125" bleed area.
- Traps, minimum of .005" (.36 points) to a maximum of .007" (.5 points).
- GCR (Gray Component Replacement): 70%.
- Maximum dot density: 300% to 400%.

- **TYPES OF PROOFS (may require additional costs)**

Xerox Proof:

A black and white paper copy of the composite layout of all positioning and color separations, prepared on a large format photo copier.

PostScript Laser Print:

A black and white print out on white paper from a PostScript laser printer; this is only available when art is processed through Prepress.

Ink Swatch:

An actual color matched ink draw down on a swatch of the substrate selected for the job when a color match is critical.

SHERPA Proof:

A high resolution color inkjet print on heavy semi-matte paper with art and dielines. This proof's intended use is to show color separation, dieline and placement of the artwork and product. The colors on this proof may not match the actual job due to differences in printing processes, inks and substances. This is only available when art is processed through our electronic Prepress department.

Screen Proof:

An actual proof sheet of the artwork screened on the color substrate selected for the job.

Pre-Production Proof:

An actual screened and assembled piece is produced.

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