STAR PACKAGING

Design and File Preparation for Flexographic Printing

We know that a great deal of time and effort goes into creating the perfect design for your packaging, and our goal is to make the transition from concept to finished package simple and successful!

By taking the time to understand the capabilities of our equipment and by clearly communicating your expectations, you can greatly reduce lead times and production costs.

BEFORE YOU START...

- Make sure that you have an accurate dieline.
- Familiarize yourself with any packaging regulations and restrictions that apply to the product that is being packed.
- Review and understand the capabilities specific to flexographic printing at Star Packaging, as outlined in this guide.

BEFORE YOU FINALIZE YOUR DESIGN...

We encourage you to include our graphics department in your design process and invite you to forward files to us for review. We can review your design and help pinpoint elements that might not reproduce well on press, giving you the opportunity to make adjustments that adhere to the integrity of your design prior to submitting the design for your customer's final approval.

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DIELINES

One of the most important things to keep in mind when designing a flexible package is its unique shape. Where will the graphics need to be placed for maximum impact? Which direction should the text read? Which areas might be covered or distorted by seals or zippers? Every piece of packing equipment is unique; a layout that produces perfect packages for one application may not work for another.

The key to successfully placing elements in a design is to start with an accurate template, or dieline. A dieline is a diagram that clearly defines printable areas, as well as reflecting seal areas, zippers, tear notches, hang holes, eyespots, and any other features that may need to be taken into consideration when creating your layout. Without this information, you may spend countless hours laying out the perfect design only to find that the whole design will need to be rearranged to fit a layout with completely different proportions.

Our graphics department and sales staff can work together with the packer to develop a dieline for almost any application. Dielines are supplied in Adobe® Illustrator® CS4 format unless otherwise requested. While it doesn't take very long to create the dieline files themselves, collecting and verifying all of the necessary information can take several days. Please allow at least a week for us to fulfill dieline requests.

COLORS

Number of colors

All designs should be kept to a maximum of 10 colors, including white ink and a varnish plate, if applicable. Please include a color legend on any supplied proofs and make sure that the colors used in your design are labeled clearly and properly in your files.

Please note that "Process Black" ink, the "K" in CMYK builds, often appears as a dark gray when used independently in a design. For this reason, we may opt to run both a process black plate and a solid, or "line black," plate so that we can utilize a stronger, more opaque black ink for elements that require a darker appearance. Please take this into consideration when determining the number of colors in your design.

Spot Colors

Although CMYK reproduction is widely used in flexography, there are many instances where the use of spot colors is preferable, or even necessary. Utilization of the Pantone® Matching System, (PMS), is recommended for maximum consistency. For best results, use spot colors in the following circumstances:

• Use a spot color when consistency of a specific element, such as a logo or background color, is important throughout a product line.

• Use a spot color for text, in order to maintain optimal legibility.
• Spot colors should be utilized for elements that require vibrant color. Please keep in mind that custom colors that are converted to CMYK do not always maintain their original brilliance or hue.

If we are required to match a custom color, please supply any materials necessary for matching. We will supply ink swatches, called ink drawdowns, from our ink manufacturer for approval of specially matched colors prior to production. We will not supply drawdowns of PMS colors unless specifically requested.

Screens

Screens can range from 85 lpi to 133 lpi, depending on the design. If a specific lpi is required, this must be communicated prior to file separation.

Combining screened and solid print areas on the same plate presents a challenge on press. Enough ink must be applied to the plate to produce adequate density in the solid areas without applying too much ink, causing the ink to fill in the spaces between the dots of the screen. When ink builds up in the spaces between the dots, the screened areas will appear "dirty". If we identify a situation where combining screens and solid areas on the same plate may compromise your design, an alternative treatment may be suggested.

A special note about imitation metallic inks

While the use of imitation metallic inks can enhance a design, we do not recommend using tints, or screens of these inks. The pigments used to create the metallic appearance have a tendency to fill in the negative spaces in the screens, making them appear "dirty".

Gradients

The smallest dot that can be etched onto a flexographic printing plate may be as small as 2%, but may gain to as much as 12% on press due to the nature of the photopolymer plate material and the printing process.

This effect is most noticeable in gradients that are intended to have a soft gradation to 0%, which will stop gradating below 12% and will end in a hard line where the gradient drops to 0%.

GRADIENTS ON FILE



Linear gradient, 100% - 0%



Radial gradient, 75% - 0%

GRADIENTS ON PRESS



Linear gradient, 100% - minimum dot

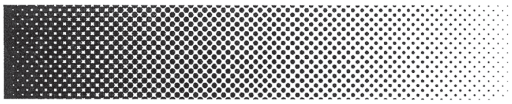


Radial gradient, 75% - minimum dot

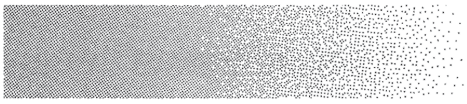
Depending on the design, a combination of conventional and stochastic screening may be utilized. Rather than the dots becoming smaller and smaller, after a certain point, the dots are printed farther and farther apart, in a random pattern. This method can result in a grainy appearance, however, so it is not recommended for all designs.

Please note: the gradients below do not reflect the same values or line screens. They are to be used for comparison of the dot pattern at the lighter end of the gradients only.

Example of classic screening



Example of combination classic/ stochastic screening



CMYK Images

When incorporating photography or other CMYK illustrations into your designs, please keep in mind that the image that your computer monitor or output device displays may not match the color that will be achieved on press. All monitors and color printers are calibrated differently, and they do not represent the effects that dot gain may have on an image.

For all designs that include CMYK elements, we will produce a color target proof that will reflect the appearance which can be expected on press. This proof will be submitted for approval prior to making printing plates.

We recommend that a proof be supplied, which represents the appearance that you would like to achieve, so that our prepress house can make any necessary adjustments to match it as closely as possible. If you choose to do so, please clearly indicate that we are to match the supplied proof for color.

TRAP

Star Packaging utilizes an electronic on-press registration system to monitor and correct registration during the course of a press run, resulting in outstanding registration capabilities. However, absolutely perfect registration is difficult to achieve on a flexographic press, therefore certain measures need to be taken to insure that the design is not negatively affected by slight misregistration.

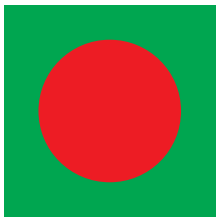
Trap refers to the slight overlap of elements in a design, which occurs wherever elements on different plates are adjacent to one another. Trap prevents gaps from appearing in the print in the event of slight misregistration on press. Star Packaging's trap may vary from as little as .007", (process to process) to as much as .02", depending on the design.

While we request that any files supplied to Star Packaging NOT be trapped, it is important to understand the concept of trapping and how it may affect the

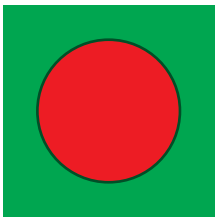
appearance of your design.

For instance…

• Trap can be particularly noticeable between two colors that are of medium hue, such as red and green. A small, darker line may be visible where the two elements abut.

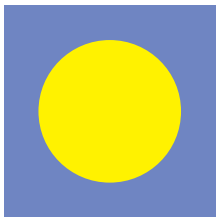


Appearance on file

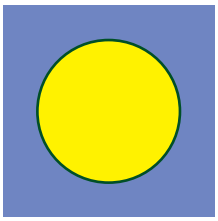


Trapped appearance (red spread into the green .015")

• Blue and yellow elements placed next to one another may result in a green trap line.



Appearance on file



Trapped appearance (yellow spread into the blue .015")

If you have questions about how trap may affect your particular design, please contact us!

TYPE

Positive text

Minimum type size for positive text is 4 points. Type below this point size may not be legible when printed. With this in mind, please pay special attention to ®'s and TM's.

For best results, small text should be created from one solid color. Screened text can be difficult to read, and slight misregistration on press can affect the legibility of text that is created using more than one color.

Reverse text

Minimum type size for light-colored text that reverses out of a dark-colored background is 6 points. Type below this point size may fill in and not be legible when printed. We do not recommend using light-style fonts or serifed fonts for reversed-out text, as the thinner portions of the letters will have a tendency to fill in. Watch for any areas of the text that are less than .01" in thickness – these may not reproduce well.

Type should never reverse out of more than one color. Utilize a solid, single-color keyline, (minimum thickness of .75 points, or .01"), to outline light-colored text reversing out of a background that is built from more than one color.



In this example, a .75pt process black keyline is used to define the shape of the letters in the net weight line.



Here, the light purple background color is used to add a .75pt gap between the net weight line and the surrounding pattern.

Dropshadows

Please be aware that the addition of a dropshadow to reverse text introduces an additional color to the background, meaning that the background color and the dropshadow color would have to be in perfect registration in order to create the shape of the letters properly.

For this reason, we discourage the use of dropshadows, particularly on small reverse text. If a dropshadow is required, we recommend adding a gap between the light-colored text and the dropshadow on larger text or a single-color keyline/dropshadow combination on smaller text so that the shapes of the letters themselves appear on only one plate.

Problem

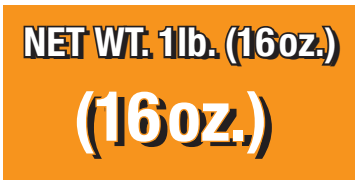


Intended appearance (15 pt text)



Appearance with .007" horizontal and vertical misregistration

Possible solutions



.75pt keyline/ dropshadow

Gap between letters and dropshadow on larger text

Adobe® Photoshop® and text

Text should always be created in a vector format. Text created in Adobe® Photoshop®, or any other raster-based program, will have jagged, rastered edges, making smaller text particularly difficult to read. Vector based graphics and text will have smooth edges.



Rastered text at actual size



Rastered text enlarged 400% to show detail



Vector-based text

Fonts vs. Outlines

While converting text to outlines eliminates the possibility of text reflowing or fonts not viewing or reproducing properly, it limits our ability to edit or resize text in the event that revisions need to be made to the content or layout of the text. Should text revisions be necessary, we may not be able to duplicate the appearance of the copy if we cannot identify or do not have the font that was originally used.

For best results, we recommend that two versions of the file be supplied, one with the text converted to outlines and one with live text.

BAR CODES

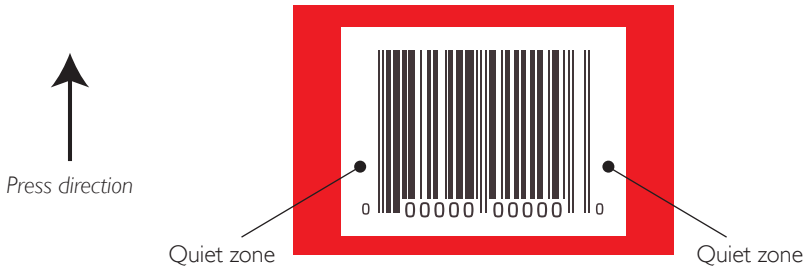
Bar codes should be no smaller than 85% and no larger than 130%.

Make sure that the bar code prints in a scannable color. Since most bar code scanners utilize infrared light, avoid using inks with red or orange pigments. If you have questions about the scannability of a certain color, please contact Star Packaging's graphics department.

For best results, we recommend that bar codes appear on a white background.

Make sure to allow a "quiet zone", or no-print area of at least 1/8" to the left and right of the leftmost and rightmost bars of the code.

In order to avoid potential distortion, the code must be placed so that the bars run through the press in the same direction that the film runs through the press. If you have a question about the press direction, please contact our graphics department.



TONE SCALES

In order to measure and maintain the proper ink density on press, CMYK tone scales are required to appear within the print area on all CMYK designs.



The circles, which measure .2149" each, are typically placed in an inconspicuous area, such as underneath a seal or next to the bar code. If you have a preference for placement, please let us know.

FILE FORMAT AND TRANSFER

• Adobe® Illustrator® is the preferred file format.

Adobe® InDesign® and Quark XPress® files are also acceptable, however, please be advised that they may be exported for use with Adobe® Illustrator®. These programs are excellent for typesetting and building multiple page documents, however, they are not ideal for package design. Placed images within these files often have a low-resolution preview, making exact placement of elements a challenge.

• Support files must be supplied for all placed images, including those that are embedded.

Photoshop® support files should be 300 dpi at the size at which they are placed into the final file. Please keep in mind that the resolution of a raster file decreases proportionally when enlarged. For instance, if a 2" x 2" image that is 300 dpi is placed into a file at 200%, the resulting dpi is 150, which is not high enough to reproduce well.

When supplying Photoshop® support files, please do not compress the layers in the file.

• Any fonts that are not compatible with a Macintosh platform must be converted to outlines. (Please be aware, however, that converting text to outlines limits the ability to make any content or layout adjustments). Before sending fonts, please consult with your font supplier to make sure that the licensce allows the fonts to be used by both the designer and those outputting your files, and supply fonts only if licensing permits. Please supply one version of the file with the fonts converted to outlines, and one with live text.

• Always include either a PDF or a hard copy proof of your final file so that we may verify that the file we have received is correct and that there are no issues with fonts or special effects. If you have a color target that you would like for us to match for a CMYK illustration, please send it to our graphics department. If you do so, please make sure that the proof is clearly labeled as a color target. Please also forward swatches of any special match colors so that we can produce ink drawdowns for your approval.

• You may transfer files by email, CD or DVD, or by uploading them to an ftp site. You may utilize Star Packaging's ftp site for your convenience. Please contact Star Packaging's graphics department for uploading instructions and a password.

QUICK REFERENCE GUIDE

Maximum number of colors: 10
Line screen: 85 lpi - 133 lpi
Trap size: .007" - .02" (.01" typical for line-to-line or process-to-line)
Minimum type size (positive text): 4 points
Minimum type size (reverse text): 6 points (larger for serifed fonts)
Minimum rule size (positive): .33 points
Minimum rule size (reverse): .75 points
Bar Code size: 85% - 130%

ADDITIONAL RESOURCES

To establish new bar code numbers:
GS1 (formerly the Uniform Code Council): http://www.uc-council.org/

FDA Food Labeling Guide*:
http://www.cfsan.fda.gov/~dms/2lg-toc.html

USDA Meat and Poultry Labeling Guide*:
http://www.fsis.usda.gov/PDF/Labeling_Requirements_Guide.pdf

To purchase a comprehensive guide to technical specifications and industry standards for the flexographic printing industry: http://www.flexography.org/edutrain/first.cfm

* Star Packaging serves many different industries, each with their own set of varied and complex labeling requirements. It is our customers' responsibility to verify that their packaging meets any requirements set forth by regulatory agencies governing their industry.

CONTACT INFORMATION

If you have any questions or concerns about the information presented in this guide, or if you would like for us to review your design, please contact us:

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