K-State Printing Services
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WILDCAT exPRESS
News from Kansas State Printing Services

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Spot Color VS. Process Color

There are two different ways color can be applied to paper in color printing: spot color and process color. Spot color is a method of applying a premixed color of ink directly to the page. Process color applies four or more standard ink colors in very fine screens so that many thousands of colors are created. Spot color is usually used when a few exact colors are needed. Process color is more useful for printing photographs, paintings and very complex colored images.

In some cases, both spot color and process color can be used on the same document (like this newsletter). For example, a company brochures may include color photos (process colors) and a corporate logo (spot color). Spot color applies a premixed ink to the page. This color is usually identified by a color system such as the Pantone Matching System. Spot color is useful for documents that require only a few colors, such as newsletters, brochures and stationery. Spot color is also used to match specific colors very closely.

The cost of printing color documents is related to the number of ink colors used. As process color requires four or more inks, spot color can be cheaper if you use fewer than four colors. Spot color also has the advantage of printing a wider range of clean, bright colors.

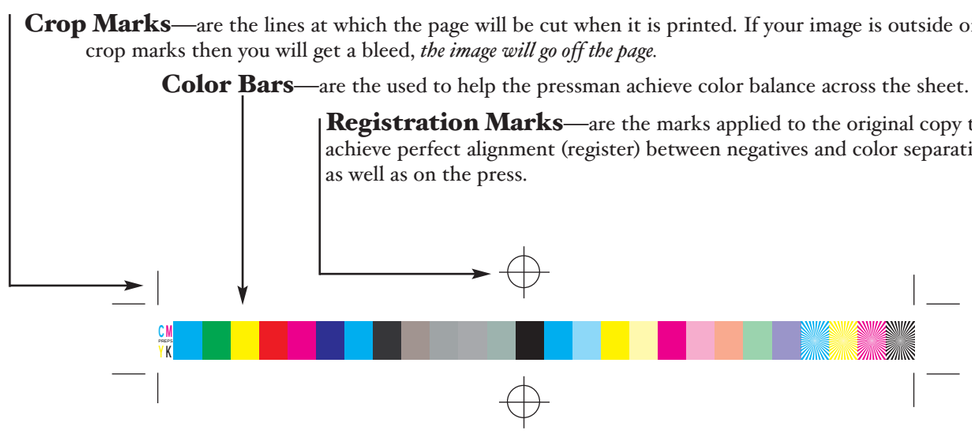
The original image is separated into its cyan, magenta, yellow, and black components. A film is made for each separation and then a plate is produced from the film. The paper is run through the four stations of a four-color press to accept layers of ink from each plate. When all four colors are printed together, the illusion of continuous color is complete.

Learn the Language

Crop Marks—are the lines at which the page will be cut when it is printed. If your image is outside of the crop marks then you will get a bleed, *the image will go off the page.*

Color Bars—are the used to help the pressman achieve color balance across the sheet.

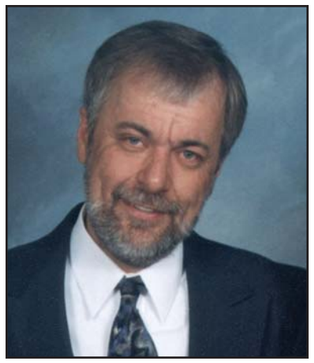
Registration Marks—are the marks applied to the original copy to achieve perfect alignment (register) between negatives and color separations as well as on the press.



— INSIDE —

Four Color Process

Four-color process printing is an amazing procedure. Few people outside of the printing industry fully realize either the complexity or the different processes required for converting a color photograph for use in a printed medium. In four-color process printing, inks are used together to create new colors. Because process inks act much in the same way as filters, subjects containing several different colors or gradations of colors can be reproduced using just three colors of ink: cyan (blue-green), magenta (bluish-red), and yellow. Process yellow absorbs only blue light, magenta absorbs only green light, and cyan absorbs only red light. When yellow is printed on top of magenta, the result is a shade of red. Yellow printed on top of cyan results in a shade of green. In theory, when cyan, magenta, and yellow are printed on top of one another, black should be the result. In reality, the result is a brownish color, because of the nature of pigments. To help compensate for this, black is added as the fourth color in four-color process printing. This process is often referred to as CMYK.



Ed Wilburn—Director of Printing Services

Look at the photograph on the right. You can differentiate hundreds of different colors in it. However, we printed it using four inks—cyan, magenta, yellow, and black (CMYK). First, we had a four-color separation (negatives) made from a color slide (or photograph). *Occasionally, four-color separations must be ordered through an outside source, please allow additional time for this special order.* This separation allowed us to burn plates for each color to be used. These plates are the image carriers used on the press that enabled the press to transfer ink to paper. This transfer resulted in an image consisting of hundreds of thousands of different sized dots, just like black-and-white halftone, except that now instead of just one black-and-white halftone, there were four colors of ink laid on top of one another. If you were to look through a magnifying glass you can see some of the dots are printed on top of one another, some are printed right next to each other, and some are just close together. The viewer's mind is constantly blending the dots, approximating the colors found in the original image.

(C) Cyan Plate

(M) Magenta Plate

(Y) Yellow Plate

(K) Black Plate

K-State Printing Services

A long time member of Printing Services Retires after 42 years

Larry Carlson is ready to have some time off. When Larry started at printing services in 1960 he started by operating the paper cutter. Soon he began to run a press and printed the Collegian. He progressed all the way to be the Production Supervisor of the Shop, keeping all of the presses and people working smoothly to get jobs done. Over the years he has operated over 10 different presses in the shop. The press he liked best was the Heidelberg SORK. A memorable time for Larry was in 1985 when he was named Employee of the Year at K-State. He has been here through 5 directors and has been a supervisor for 21 years. As the times and technology keep changing, Larry has seen the shop grow and develop into the outstanding service that K-State has today. He says he is ready to let someone else supervise the pressroom and have some time to go fishing, do some remodeling, and deliver "meals on wheels" for his church.

Check out our new web site! It is updated and revised. You can print off all of our forms at www.ksu.edu/printservices.

Basic Guidelines for Illustration type artwork

* There are only two kinds of graphics that should be used in your layout files, if you are planing to print on an offset press: .eps and .tiff. Other files have a less than desirable resolution output for printing but can be used.

* Avoid placing other illustration type EPS files in an illustration type file if you can. It is better to open the file and copy and paste it into your new file. If you do place an external EPS or TIFF file into your illustration, be sure to send that file along with your other electronic files. Your artwork will not print correctly without them.

* Color names defined in EPS and TIF files should match the color names defined in your page layout files exactly, character for character. Common examples of mismatched names include "Pantone xxx CVU" vs "Pantone xxx CVC" vs "Pantone xxx CV." Theses are different names and will result in a different sheet of film when the job is separated to the imagesetter.

* If your graphic is to be printed in CMYK or process inks, then define your colors that way. If they are to be printed in Spot inks, then define them that way. *(If you are planning to print to our large format printer you need to define you colors in CMYK.)* If you do not understand the difference, please consult Printing Services.

* For simple use of type, convert it to outlines. This removes a graphic's dependence on an external font suitcase and printer font.

* Make your artwork the actual size in the source application and avoid dramatic scaling in your page layout software. *(Note: if you are planning to print to our large format color printer it is better if you do not make it the actual size but 50% the original size and we can enlarge it. This will keep your files smaller.)*

Spot

color

VS.

Process

color

Estimates can help you plan your printing orders

Why ask for an estimate when you are ordering? You may need to know the cost for budget reasons. Perhaps the cost may be required information on your requisition. Or the estimate may determine the materials you use. For instance, you may be able to upgrade the quality of stock, use colored ink instead of black, or add a logo or a cover page.

The initial step in the estimating process is providing printing specs for your job. Usually you can receive your estimate within a couple of work days, but a quicker turnaround time is possible. A customer service rep is always available for customer consultation. They can discuss job specifications, make suggestions for improving the product design or construction, help determine a realistic delivery date, and assist the customer in lowering printing costs.

To get the most accurate estimate for your job, be specific and have as much information as you can. A mock-up, sample, or similar printed piece is helpful. Here is a list of information to compile when requesting an estimate:

Contact name—*very important in case we have more questions*
Job description
Quantity needed
Number of pages
Dimensions of the finished piece
Preparation services (if any), *such as typesetting, scanning or design*
Color of ink(s)
Type and color of paper
Proofs needed
Finishing services (if any) *such as pad, collate, staple, fold, binding, shrinkwrap, etc.*
Delivery destination

When you request an estimate, you may want to know the price of several different quantities. The price per item decreases as the quantity increases. Or you may want to compare different types of stock or several colors of ink. The cost of stock is generally a small portion of the total printing cost and may add significantly to the appeal of your finished piece. Prices for printing are designed to be competitive in the printing market, and are generally lower than external vendors. Printing Services also provides special services that include courier pickup and delivery to and from the customer's desk; large job production capabilities; mass mailings; etc. If you have questions about requesting an estimate, job or special services we provide, contact Printing Services.