Paper, Ink, Computers, & Proofs

Get an Accurate Representation

The world of colour and design can be a very complex place. It can be stressful to any designer when they have an idea or concept in mind and it comes back from the printers in the wrong colours or hues. As a result the job must be rerun; time and money are wasted. When this occurs, the designer may ask, "Why did this happen?" Luckily, there are ways to prevent or minimize the stress before it ever occurs. This brochure gives some simple explanations about colour, how to view it, and what to expect. It also mentions why the choice of correct paper and inks is important to any job and its message.

An image begins its life in two ways, either as a hardcopy (picture, painting, drawing,) or digital (on-screen viewing, digitally created). Later a hardcopy can become digital and a digital can become a hard copy. In these processes an image passes through various colour spaces. Colour's relationship and importance is briefly discussed in the next paragraphs.

Understand Colour Space

In most cases, before an image can be printed it must become digital. This can be achieved in three main ways:

- An image is scanned
- A digital picture is taken with a camera
- An image is created in the computer

In each case, all images end up in the computer. These digital images all have a resolution. Resolution is the sharpness or clarity of an image and it is made up of little square dots called pixels. These pixels are measured in a linear distance known as pixels per inch (ppi). If your image is only for a screen view it can be 72 or 100 ppi, which is considered a low resolution. However, an image sent to a print house should be no less than 250 - 300 ppi if you want to have a crisp clear image to view on paper.

RGB

While the images are in the computer they are viewed on a screen that has a colour space called RGB Red, Green, and Blue. These are the colours of light. It's the only way your computer screen shows colour.

However, a press cannot print a colour job with Red, Green, and Blue ink; it would end up as a muddy mess. A job that is to be printed must be converted into one of the three other main colour spaces.

CMYK

CMYK or Cyan, Magenta, Yellow, Black(K) is a four colour process which printers most often use. It's seen on pages that contain many coloured images along with black or coloured type. This four-colour image is actually composed of many little dots, which cause the eye to believe that it is looking at a full colour picture.

Grayscale

Grayscale generally refers to a one-colour image that looks like a black and white photograph. One-colour images are also seen with black text.

Spot Colours

Spot Colours are generally special colours (example greens, or metallic) other than black. They can appear with another special colour or with black to create an image that is called a duotone. They can also appear with the regular four-color process to become a fifth or sixth colour.

Colour Interpretation & Conversion

As previously mentioned, in the process from a hardcopy to a digital image, and to an image on paper, many conversions in colour happen. The scanning process assigns numbers to each pixel of colour and tries to represent colour as best as it can on the screen. However, over time the pixels in the screen and the light in the scanner become old and a true representation becomes less and less accurate. Lighting conditions and glare around the computer screen can also effect how we view the colours. It is important, if you are concerned about colour, to monitor how your scanner scans and to calibrate your screen if possible. Also, it helps to remove any lighting glare around your screen.

The second conversion from computer to press or to ink jet printer can also affect colour interpretation. A colour proof from an ink jet printer and the colour you see on the press may be slightly or even very different. When a sales rep presents a colour proof for you to check, ask your sales rep, "How closely will this colour proof

match the final printed job?" Also check if you should add a fifth colour, if that hue will cover a large area or is a corporate colour. When a colour is made up of more than one ink, shifts in colour can occur. A fifth or pantone colour will keep that colour more stable.

Two other factors that affect a job's colour are the choices of paper stock and ink.

Simple rules about Stock:

• White paper is best for printing in four colours. Yellow paper will make blue objects look green.

• Photographs originally imaged on glossy paper look best printed on glossy paper.

• For pictures with text, the lettering can best be read as black ink on a dull or matte finished paper. A gloss varnish can be added to the image area or a matte varnish to the text area to reduce glare.

• Paintings that contain grain or texture, in some cases, look best on a stock with a matte finish.

• Choose a stock for the colour proof that closely matches the final job.

Facts about Ink:

• Inks that are too bright do not allow the eye to focus on an image.

• Metallic inks look best on glossy paper.

• Two colour photo images (duotones) should be black and another colour, mixing spot colours often ends up in muddy images.

Correct Lighting Conditions to view a job

Lastly, when viewing the job, look at it under lighting that is similar to the lighting of the room where it will be read or displayed in. Neon and Florescent lighting can have a blue or yellow cast and will make your image's colours look different than your original proof. Check with your printer or sales rep what kinds of lighting are available for viewing a proof or the actual job.

Final Thoughts

Colour is viewed and interpreted by machines and ourselves in different ways. The saying, "What you see is what you get", is not always true. No colour job is ever 100% accurate. However, if you keep your digital equipment calibrated, and choose the right stock and ink for the job, that will help.

Finally, if for some reason your job does not end up as you had planned, consult with your Sales Representative about what could be improved the next time. Remember, you can make better and informed decisions when you plan ahead. Know how the final product will be viewed and used.

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What you should know about colour on your computer screen. How to make informed choices about the types of stock and ink you choose.

Produced by The Ink Rag