



# Designing for Success

Prepress

NexPress 2100

## The Designer's Guide to Digital Printing with the NexPress 2100



**HEIDELBERG**

**Kodak**

# Contents

- 4 Why Digital Printing?**
- 6 Secrets to Great Digital Color**
- 7 Achieving the Best Printing Results**
- 12 Keys to a Clean Finish**
- 14 File Preparation**

**Why Digital Printing?** • Have you ever met a designer who didn't want more flexibility, more choices and more time? Current trends in design demand tools that let you implement great ideas quickly and cost effectively. Digital printing has grown to be one of the designer's most powerful resources. In fact, for many designers, it's become every bit as valuable as the digital design tools they work with every day. Without modern design software, most printed pieces would be impossible, or at least very difficult, to create. In a similar way, digital printing helps keep your options open all the way through the production process.



Digital printing brings designers more flexibility and new options for printed communications.

As you learn more about digital printing, you'll soon discover a whole new range of creative options never dreamt of in the conventional print world. Digital printing systems, like the NexPress 2100, are a perfect choice for smaller quantities, print-on-demand and tight deadlines. Digital also excels when a project calls for a variety of substrates or when a job requires several different versions. And when it comes to variable data printing, there is simply no other way. This guide will help you learn how you can use the benefits of digital printing to expand your creative options.

Multiple paper stocks are collated right on press.



## Why the NexPress 2100? • The NexPress 2100 is a unique printing solution. It combines the power of a press with the flexibility of a printer.



Output is delivered dry and ready for finishing – ideal for flexibility and speed.

Like an offset press, the NexPress 2100 delivers high productivity and consistently top-quality pages. At the same time, it provides the immediate turnaround and short-run economy of a printer. The NexPress 2100's ability to reproduce true color on a variety of substrates – coated and uncoated – gives you the options most digital printers can't deliver. And because it's sheet-fed, you can choose from a wide range of paper stocks and combine up to three different papers in a single job. NexPress DryInk™ technology

eliminates the time-intensive drying process, enabling documents to go directly to finishing.

These features make the NexPress 2100 the right choice for the higher-value print applications your clients need, including high-quality, on-demand prints in short runs with quick turnarounds; fully customized 1-to-1 marketing materials; and full-color collated pages that are ready to be finished immediately. The NexPress 2100 was designed and built to meet the requirements of jobs that demand quality, flexibility and speed.

# Secrets to Great Digital Color

## Print Gamuts

Gamut is the term used to describe the range of colors that a specific device can produce. If you're accustomed to designing within the limitations of the traditional color gamut of the CMYK offset process, you'll be pleasantly surprised to learn that the advanced technology of the NexPress 2100 and DryInks make it possible to exceed that gamut.

Your computer monitor, however, can display many colors that are outside the gamut of any printing process, even a 600-dpi digital printer. In the same way, the inkjet or dye sublimation printer you may use to create proofs also has its own distinctive color gamut. The bottom line: what you see on your monitor or on your proof is not necessarily a good indication of the final printed result. The best way to know exactly how your color will look is to ask your printer to proof the job on the NexPress 2100. That's one of the benefits of digital printing – proofs can be run on the same printer as the final output.

## Blacks and Grays

If you want to print a solid black area, use a formula that combines all CMYK colors to create a rich or super black. A few sample formulas are shown here and you can check with your printer for other variations that work well. If you're planning to reverse white or light-colored type out of black, modify the formula to a slightly less rich mixture. Here again your printer is the best source of information as you learn about the capabilities of digital printing.

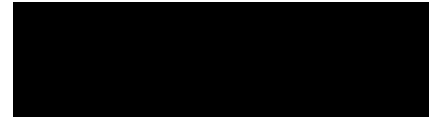
For neutral shades of gray, you'll get the best results with straight tints of black.

## Spot Colors

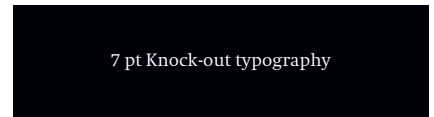
NexPress software uses spot color mapping and special look-up tables to automatically match Pantone® colors using CMYK DryInks. That means you don't need to alter or reformulate Pantone and other spot colors. However, if you prefer the control of selecting your own CMYK formula, you can always convert Pantone colors yourself using standard Pantone-to-CMYK charts.



100K



60C, 40M, 40Y, 100K (240%)



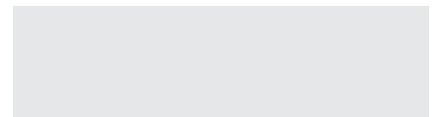
40C, 20M, 20Y, 100K (180%)



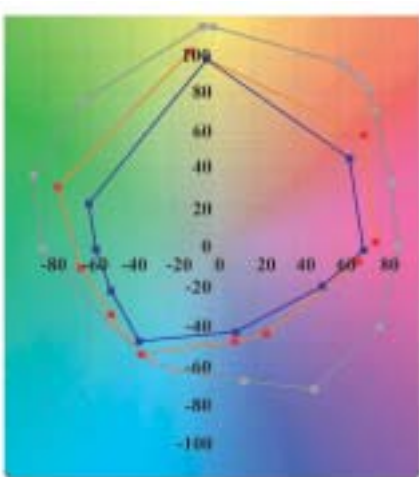
80K



40K



10K



Blue to Yellow Tones

Color Gamut Boundaries for Pantone®, NexPress 2100, and Offset

Green to Red Tones

- Pantone
- NexPress 2100
- Offset

# Achieving the Best Printing Results

## Large areas of color

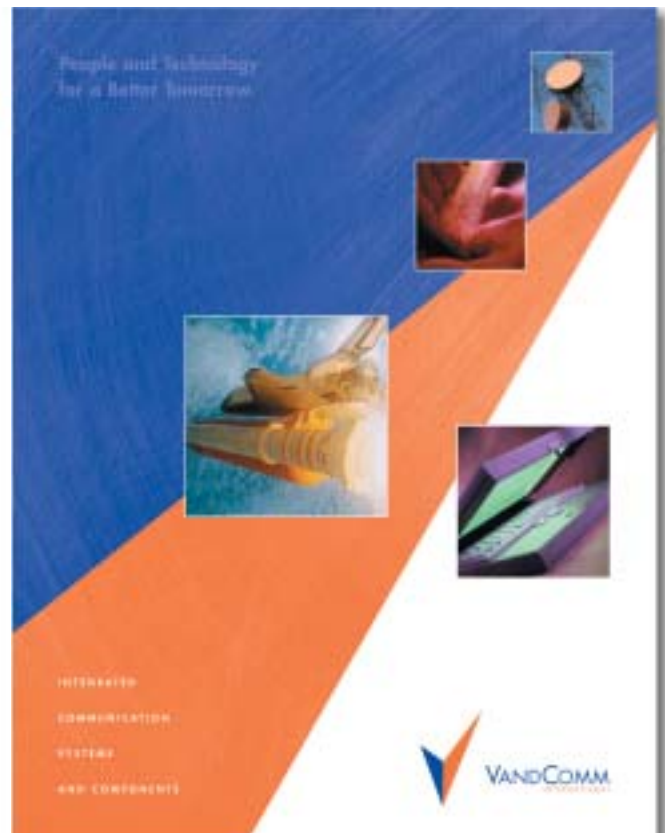
- Areas of solid color, tints and blends may reproduce better if filtering techniques are used (i.e., noise or texture). Apply from image manipulation software such as Photoshop.
- Create blends from QuarkXPress, Photoshop or other common desktop publishing applications.
- Tints should not be less than 10%.
- Limit blends to less than 50% value change over 2-4" for best results.
- For tints less than 40%, apply a noise filter.

## Large Areas of Solid Colors, Tints and Blends

There are several design techniques you'll want to learn to help improve the way large flat areas of solid colors or tints reproduce on a digital press. To maintain a smooth appearance, introduce a slight pattern to modulate the color. The pattern can take the form of texture, subtle graphics or simple noise. Adding a pattern can also improve color reproduction and eliminate banding. The same holds true for large areas of color blends and gradients.



On a digital press, large areas of solid color, tints or blends may show some unevenness or banding.



Adding a subtle pattern to the background or incorporating other design elements may increase the visual attractiveness of the piece.

## Use All Your Design Options

One of the best ways to optimize quality in large areas is to incorporate imagery, photos, graphics or text in your design right from the start. When you naturally break up large areas of color with design elements, you're also taking advantage of one of the strengths of working on a digital press – that is, the ability to reproduce high-quality, full-color images.

### Photo Reproduction

Sharp, crisp reproduction of photography and illustration is one of the greatest strengths of the NexPress 2100. The 2100 excels at skin tones, highlight and lowlight detail, and rich, true color. So take full advantage by maximizing the use of photographic images whenever possible.

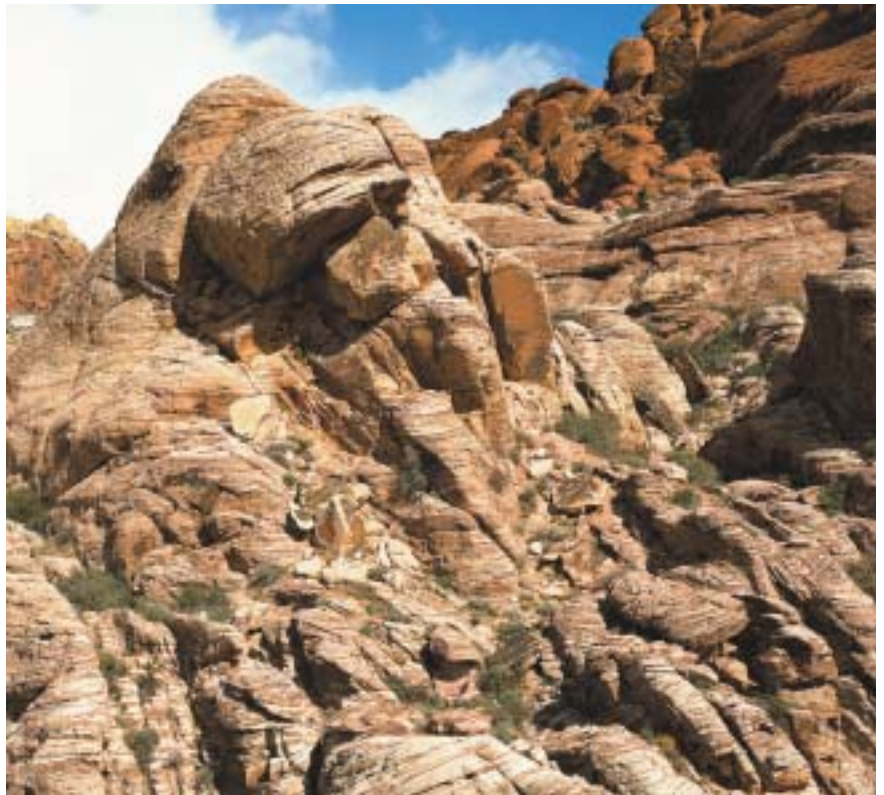
The NexPress 2100 was designed to reproduce warm, lifelike skin tones.

Highlights hold their definition and color detail.



The capability to accurately print rich, true colors is a strength of the NexPress 2100.

Lowlight areas show depth and clarity.



This is 4 pt. font  
 This is 5 pt. font  
 This is 6 pt. font  
 This is 8 pt. font  
 This is 10 pt. font  
 This is 12 pt. font  
**This is 18 pt. font**

This is 4 pt. font  
 This is 5 pt. font  
 This is 6 pt. font  
 This is 8 pt. font  
 This is 10 pt. font  
 This is 12 pt. font  
**This is 18 pt. font**

**Text**

With digital printing your font choices and sizes are as limitless as they are in conventional printing. And unlike most digital printers, the NexPress 2100 can print 4 point black type clearly and legibly.

**Dot Gain**

In conventional printing, you probably found yourself dealing with issues concerning optical and mechanical dot gain. The good news is that with the electrophotographic technology of the NexPress system, there is essentially no dot gain. So, you should not have to make any adjustments to your files. Ask your printer to be sure.

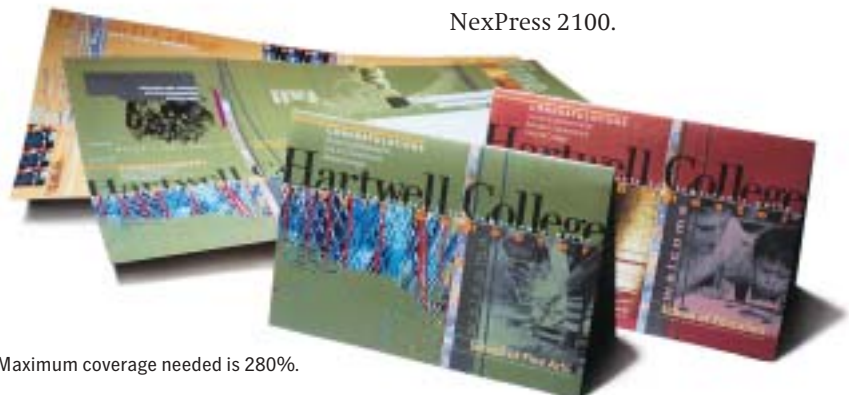
**DryInk Coverage**

While it would be technically possible to print 100% of each process color for a total coverage of 400%, it's not necessary or recommended. In an earlier section of this booklet, you saw how to create rich blacks and the total coverage of the recommended formulas ranged from 180% to 240%. For the NexPress 2100, the maximum DryInk coverage is 280%. With more excessive coverage, a buildup of layers may become noticeable. If 280% coverage is exceeded in the file, it will be reduced to 280% by the NexPress 2100.



The NexPress 2100 eliminates the problem of dot gain.

Examples of Maximum Coverage	
Cyan	70%
Magenta	55%
Yellow	55%
Black	100%
<b>Total</b>	<b>280%</b>



Maximum coverage needed is 280%.

### Scanning and Scan Resolution

Scan continuous tone images at a resolution that will provide 300 dpi at the final layout size. Higher resolutions only increase Raster Image Processing (RIP) time with little or no visible improvement in image quality. Perform all scaling, rotation and manipulation of your images in your image editing application before linking them in your layout.

This photo scanned for 300 dpi at final size prints with excellent resolution and color reproduction on the NexPress 2100.



### Scanning

- Scan continuous tone images for 300 dpi at final size.
- Scan line art at a minimum of 600, up to 1200.
- Save all scans in CMYK mode. TIFF or EPS formats are acceptable.
- Save at 100% of final size.
- Do not include screen angles or transfer functions.
- Using compression can result in image degradation.
- Some printers prefer ICC color workflow, which might utilize RGB color. Consult your printer.

The same photo scanned for 72 dpi at final size shows the characteristic pixelization of a low-resolution scan.



Scan line art such as logos, type or illustrations at a minimum of 600, up to 1200, to capture sharp edges. Then straighten it, clean it and scale it down to 600 dpi at final size.



Line art scanned at 600 to 1200, straightened and then saved for 600 dpi at final size.



Line art scanned at lower resolutions may not be crisp enough to take advantage of the high-quality capabilities of digital printing.

### To Trap or Not to Trap?

The NexPress 2100 offers excellent registration, both front to back and color to color. The RIP can perform autotrapping of all files and can be set up to overprint all black elements. To ensure the best quality for your document, turn off any trapping commands in the page layout program.

There are, however, some instances where certain types of trapping can enhance your design for production. When black text or

line art appears on a light tint, sometimes a slight halo effect will appear at the edges of the black. One way to correct this is to set your black to overprint the specified tint within the layout application. By doing so, the black will not knock out the background tint and this will minimize the halo effect. If you decide to do your own trapping, please be sure to alert your printer!



Unspecified trapping where black text appears on a lighter background can produce a halo.



Specified trapping with the same art set to overprint black on the red background eliminates the halo.

# Keys to a Clean Finish

## Printable Area

Note that the printable area on any sheet size of the NexPress 2100 is bounded by a nonprinting area around the edges of the sheet. These margins need to be calculated into the final layout of any document. An easy way to do this is to plan for 6 mm (1/4 inch) nonprinting margin on all sides of your document. The chart below shows the actual maximum printing area for each sheet size printed on a NexPress 2100.

## Paper and Substrates

The NexPress 2100 provides excellent results and true color reproduction on a wide assortment of paper types including coated, uncoated, gloss, matte and textured finishes. It handles weights from 20# (80 gm<sup>2</sup>) bond to 110# (300 gm<sup>2</sup>) cover. With the new Substrate Assistant, print providers can print on all offset papers.

## Bleeds

Prepare jobs that bleed in exactly the same way as you would for conventional printing with an extra 3 mm (1/8 inch) to allow for trimming on the bleed edges. For die cut jobs, you may want to increase your bleed to 6 mm (1/4 inch) to anticipate possible movement on finishing device.

### NexPress 2100 page format specifications for international paper sizes:

Format	Metric (mm)	Printable Area	Inches	Printable Area
A4	210 x 297	199 x 286	8.25 x 11.75	7.86 x 11.34
A4 Extra	235 x 322	224 x 311	9.25 x 12.67	8.86 x 12.26
A3	297 x 420	286 x 409	11.69 x 16.54	11.30 x 16.13
A3 Extra	350 x 470	339 x 459	13.7 x 18.5	13.31 x 18.09

### NexPress 2100 page format specifications for U.S. paper sizes:

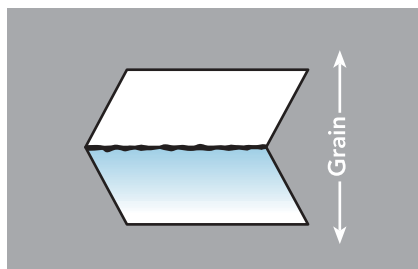
Format	Metric (mm)	Printable Area	Inches	Printable Area
Letter	216 x 279	205 x 268	8.5 x 11	8.11 x 10.59
Letter Extra	242 x 305	231 x 294	9.5 x 12	9.11 x 11.59
Max Page	350 x 405	339 x 394	13.8 x 17.7	13.41 x 17.29
Tabloid	279 x 432	268 x 421	11 x 17	10.61 x 16.59
Tabloid Extra	305 x 457	294 x 446	12 x 18	11.61 x 17.59

### Imposition, Folding and Finishing

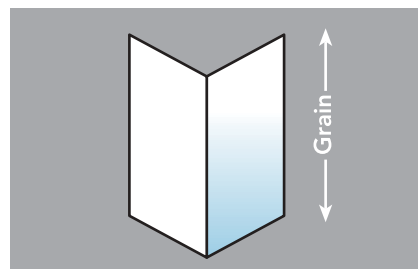
With the NexPress 2100, you can set up your documents as 2-page reader spreads, or 1- or 2-page printer spreads. NexPress automatic imposition software handles the set-up and proper sequencing, but it's still a good idea to give your printer a mock-up of your layout to avoid any possible misunderstandings. Remember to allow for the proper amount of space in the gutter for the binding process you will be using.

When it comes to folding, one concern with electrophotographic imaging systems is cracking in heavy coverage areas. You can reduce the possibility of cracking by designing your job with less coverage on areas to be folded. Whenever possible, design your job to fold with the grain of the paper, not against the grain. For best results, score all folds. If you laminate the final pages – especially covers – you can eliminate cracking and provide a durable, finished look.

All NexPress 2100 documents can be varnished, laminated, finished with an aqueous coating or a non-oil based UV coating.



Every paper has a grain, which is created when it's manufactured. Folding against the grain can cause cracking.



A fold that runs in the same direction as the grain will be neater and smoother with minimal or no cracking.



### Trimming and Binding

Virtually all commonly used binding methods are available for use with digitally printed documents. If you're taking advantage of the fast turnaround possible with digital printing though, you'll probably want to keep your binding options simple to save time. The most efficient way to finish your digital project is with a near-line finishing system. Of course, all existing off-line finishing equipment can also be used. Be sure to check with your printer for specific finishing options.

# File Preparation

## File Preparation Tips

In addition to designing your document to take full advantage of digital printing's unique capabilities, proper file preparation is essential to ensure that your job runs smoothly.

You can supply final PDF files for your printer. Before creating a PDF for the NexPress 2100, contact your printer and request the Distiller Job Options file. Place this into your Distiller Settings folder before you create the PDFs.

The NexPress 2100 performs at peak efficiency with any standard desktop application that produces PDF and PostScript.

It is a good idea to supply the printer with your source files as well. This will allow your printer to make any necessary adjustments faster and easier.

## How to Avoid Font Conflicts

- Use Type 1 standard PostScript fonts or TrueType Fonts.
- Do not use Multiple Master fonts.
- Do not apply font styles from the menu or keyboard; choose the correct version of the font from your type menu. (e.g., B Times New Roman Bold)



## Job Submission Checklist

Be sure to include all screen and printer fonts used in your document, including those embedded in image files. Include separate fonts for styles within font families.

- Provide a printed file directory for reference.
- Provide a hard copy proof to indicate page elements and sequence.
- If necessary, include an imposition layout or mock-up of the final design.
- Make sure all trapping options are turned off. Inform your printer if you have done any trapping yourself.
- Verify that images are in TIFF or EPS format.
- Make sure that all artwork has been converted to CMYK.
- Collect for output all linked files, fonts, images and page elements.
- Notify the print provider if you have attached any ICC profiling to included images, and what those profiles are.

**New Beginnings** • The NexPress 2100 opens a whole new world of digital printing options for designers.

This guide highlights some of the key considerations you'll encounter in designing for digital printing. Your printer is your best resource for more detailed information, samples and up-to-date specifications on pre-approved media. Working together, you and your printer can deliver the superior quality digital prints that your clients need, quickly and cost effectively using the NexPress 2100.

