

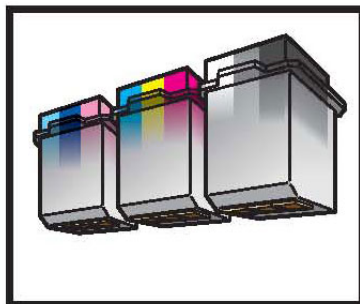
The Advantages of the New HP Nine-Ink Color Printing System

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HP INKS



HP nine-ink printing with the HP Blue Photo, Tri-color, and Gray Photo print cartridges



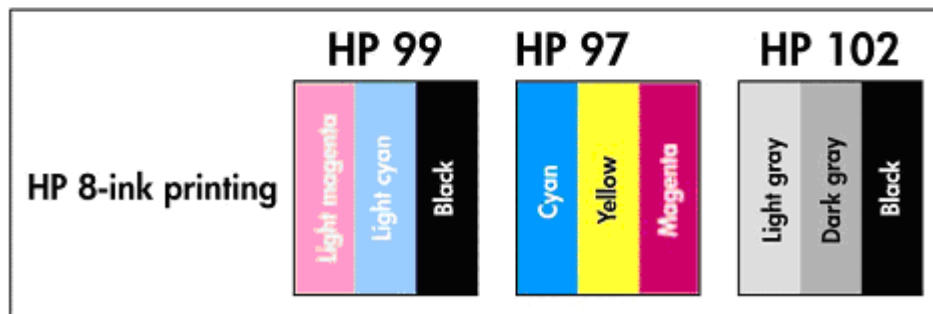
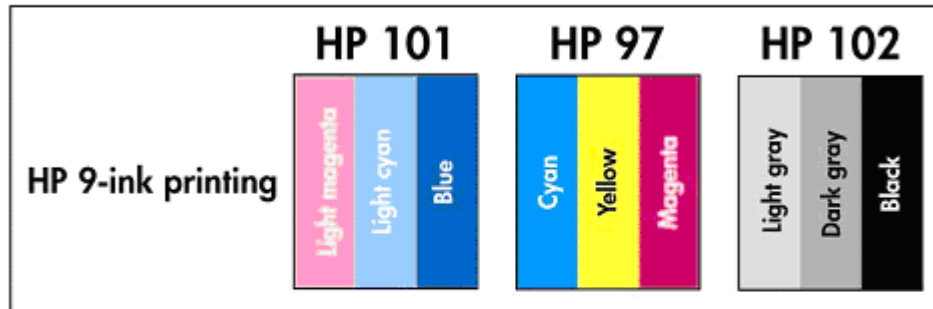
HP Nine-ink printing

The new HP Photosmart 8750 Professional Photo Printer (introduced in Spring 2005) uses nine HP Vivera Inks in three cartridges, including the new HP 101 Blue Photo Inkjet Print Cartridge, to provide image quality improvements that photographers will appreciate. Not only does the new printer reproduce substantially more of the sRGB color space (the standard used in most digital cameras and monitors), but the blue hues in common photo subjects are richer and deeper than ever, especially in the mid-tones, where the impact is especially stunning. The nine proprietary inks provide extraordinary printed image detail in contrasting colors and shadows, an extensive range of light and dark shades in every color, and truly neutral grays and blacks.

HP printers using HP Vivera Inks and HP Premium and Premium Plus Photo Papers offer the best combination of image quality and fade resistance. All elements of the printing system (printer, ink, and paper) are specially engineered to work together for reliably outstanding printed results. To maintain HP's worldwide reputation for innovation and consistent

excellence, HP's engineers and ink chemists continuously work to improve the performance of HP products, and the quality of your printed photos.

HP 9-ink vs. HP 8-ink printing



The new HP Photosmart 8750 Professional Photo Printer comes with three inkjet print cartridges, which are filled with HP Vivera Inks for an unparalleled combination of image quality and fade resistance.

- The HP 101 Blue Photo Inkjet Print Cartridge contains light cyan, light magenta, and a new blue ink.
- The HP 97 Tri-Color Inkjet Print Cartridge¹ contains cyan, magenta, and yellow inks.
- The HP 102 Gray Photo Inkjet Print Cartridge² contains dark gray, light gray, and photo black inks.

¹ The HP 97 ships with the HP Photosmart 8750 Professional Photo Printer. The HP 95 Tri-Color Inkjet Print Cartridge is also available for lower-volume printing requirements.

² The HP 102 ships with the HP Photosmart 8750 Professional Photo Printer. The HP 100 Gray Photo Inkjet Print Cartridge is also available for lower-volume printing requirements.

Most photo printing tasks should be performed with these cartridges, but some specialized tasks are best performed with other cartridges, sold separately – see the table below:

To print...	Left cartridge	Middle cartridge	Right cartridge
Full-color photos	HP 101 Blue Photo	HP 97 or 95 Tri-color	HP 102 or 100 Gray Photo
Black-and-white photos			
Sepia or antique photos	HP 99 Photo		HP 96 or 94 Black
Text or colored line drawings			

HP's eight-ink printers also use three print cartridges – photo, tri-color, and gray photo. In this arrangement, all three print cartridges have three chambers, but both the photo and gray photo print cartridges contain a black ink, so the system uses eight unique colors.

For nine-ink printing, the HP 101 Blue Photo Inkjet Print Cartridge replaces the photo print cartridge. Both these print cartridges contain light cyan and light magenta inks, but the HP 101 has a new blue ink in place of the black ink in the photo cartridge. So the main difference between these cartridges, and between eight- and nine-ink printing, is the new blue HP Vivera ink.

Why blue?

In designing the new printing system in the HP Photosmart 8750 Professional Photo Printer, the goal of HP's color scientists, chemists, and engineers was to use nine inks in the most effective way to expand the printer's gamut of colors. The printer's color *gamut* is the set of all colors it can reproduce, and it is often represented in a three-dimensional space where the axes are *hue* (color value), *saturation* (the purity of the color), and *luminescence* (the brightness or darkness of the color). HP's goal is to make the printer's color gamut more closely match the *sRGB color space*, which is the color model used by most consumer digital cameras and monitors to record and display images.

In reds and greens, the HP eight-ink color gamut already surpasses traditional silver-halide photo prints. But the sRGB color space extends further into the blues than eight-ink printing can reproduce. The obvious opportunity for improving the color gamut was to develop a new, specially formulated blue ink.

With nine-ink printing and the HP 101 Blue Photo Inkjet Print Cartridge, HP has met the goal to extend the color gamut to more closely match the sRGB color space. The bottom line: with HP's nine-ink technology you can print more of the vivid colors you see in the world and capture with your digital camera.

New Blue HP Vivera Ink

Because it interacts with both printer and paper, ink is a critical component of any printing system. HP Vivera inks are carefully engineered to work flawlessly with all parts of the print cartridge, printer, and paper so you achieve long-lasting, rich, vibrant colors. And you get extraordinary image quality time after time.

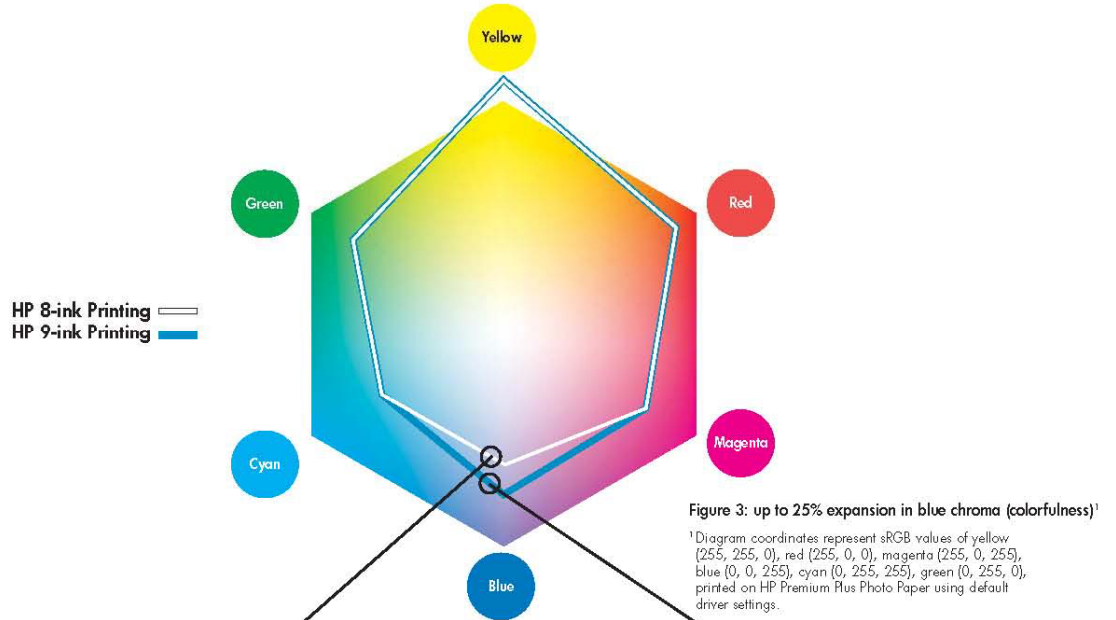
HP Vivera inks are the result of years of exhaustive testing. HP ink chemists typically design up to 1,000 prototype ink formulations that are subjected to hundreds of tests to see how the ink interacts with the cartridge, the printer, and the paper. More than 80 tests may be conducted on the print attributes of the ink and paper alone, to ensure the highest-quality results possible.

HP designed its Vivera inks from the ground up with unique, vivid dyes that provide vibrant color as well as excellent fade resistance. The new blue HP Vivera ink is designed to peak in *chroma* (colorfulness) at a lightness higher than the lightness of the blue made in other printers by combining cyan and magenta inks. This allows the printer gamut to more closely match the sRGB color space. Also, the new blue ink is brighter than the blue made by blending cyan and magenta inks.

Nine-ink printing with the HP 101 Blue Photo Inkjet print cartridge provides up to 25% more blue chroma than eight-ink printing³. The improvement is obvious in any photo print with intense blues. Outdoor photography enthusiasts will be especially impressed by the vivid blues in their landscapes, seascapes, and sports photos. Blues will be better on any paper, but the best results will be obtained on HP Premium and Premium Plus photo papers, because HP's printers, inks, and papers are designed together to deliver reliably outstanding results.

³ Based on internal HP testing. Measurement of the CIE '76 C* chroma for a patch of color at R = 0 G = 0 B = 255, printed in default sRGB mode on photo media, shows the new blue is up to 25% more chromatic.

Nine-ink Printing with HP 101 Blue Photo Print Cartridge



8-ink print sample



9-ink print sample



**Up to 25%
more blue chroma**

Smooth color gradations for virtually grain-free prints

By precisely controlling the amount and combination of ink applied at each print position, smoother gradations can be made between color tones. While the absolute number of color combinations available is not the most important factor in image quality, with hundreds of millions of ink combinations to choose from⁴, HP's nine-ink systems can reproduce more colors more accurately. The result is exceptional color accuracy and virtually grain-free prints.

- True-to-life color accuracy from the large gamut of available colors, including an extensive range of gray and dark tones.
- Virtually imperceptible image grain from the extraordinarily smooth color transitions possible in a system with a vast range of available color combinations.

Neutral grays and deep, rich blacks

In addition to studio-quality color photos, HP's new nine-ink system can create stunning black and white prints. Other printing systems blend color inks to make grays - and under incandescent or fluorescent lights, it is easy to tell: black and white prints can look purple or green. HP nine-ink printing uses gray inks to make true neutral gray tones when printing in grayscale mode. In color prints, neutral tones are consistent and controlled.

The gray and photo black inks in the HP 100 and 102 Gray Photo Inkjet Print Cartridges are developed from exclusive HP dyes uniquely blended in different combinations to create exceptionally neutral shades of grays and blacks. HP's gray inks provide extensive grayscale reproduction from the lightest highlights, through midtone grays, to the rich blacks in the darkest shadows. The inks in the gray photo cartridge produce gray tones with consistently smooth transitions from one shade to the next, with significantly less image grain compared to grays made by combining cyan, magenta, and yellow dots on paper. When used in combination with HP Premium Plus Photo Paper, the gray and black photo inks provide customers with consistently accurate representations for impressive digital photo prints. Black-and-white photo enthusiasts get neutral grays and deep photo blacks with less image grain and more accurate shadow details.

Superior fade resistance

With HP Vivera Inks and HP Premium Plus Photo Paper, HP's new nine-ink printing system produces prints with outstanding longevity. Light fade resistance is superior to lab-processed silver-halide or dye-sublimation photos⁵. Photos stored in a photo album resist fading for over 200 years⁶. These are the longest-lasting color photos with the look and feel of traditional

⁴ Based on internal HP testing. With nine-ink printing (using the HP Photosmart 8750 Professional Photo Printer in Best and Maximum DPI print modes), HP now provides up to 338 million color combinations (72.9 million combinations were possible with eight-ink printing).

⁵ Up to 108 years using the HP 97 Tri-color, the HP 101 Blue Photo, and the HP 102 Photo Gray Inkjet print cartridges on HP Premium Plus photo papers. Based on Wilhelm-Research.com light-fade testing under glass for similar systems (as of November 2004); for more information on additional permanence testing factors, visit <http://hp.com/go/premiumplusphoto>

⁶ Using the HP 97 Tri-color, the HP 101 Blue Photo, and the HP 102 Photo Gray Inkjet print cartridges on HP Premium Plus photo papers. Based on Wilhelm-Research.com room-temperature degradation (dark fade) testing for similar systems; for more information on additional permanence testing factors, visit <http://hp.com/go/premiumplusphoto>.

photos⁷. Thanks to HP's innovative dye-based inks, the HP nine-ink printing system provides an industry-leading combination of fade-resistance and image quality.

Excellent performance on fine art paper

Photo-based papers have the look and feel of traditionally-processed photos – for example, HP Premium Plus Photo Paper, HP Premium Photo Paper, HP Advanced Photo Paper, and HP Everyday Photo Paper are all photo-based papers. In addition to making great prints on HP photo papers, the HP Photosmart 8750 Professional Photo Printer produces good results with many fine art papers.

In fact, there are at least two reasons for visual arts professionals to be excited about the HP Photosmart 8750 Professional Photo Printer – impressive prints on fine art paper, and the capability of printing on B+ media (13 x 19 inches). Image permanence is quite good with uncoated fine art paper – on par with traditional silver-halide prints⁸. Of course, it is always a good practice to display prints (particularly prints on coated media) behind glass, to exclude air-borne pollutants, such as ozone. HP's new nine-ink printing and the wide range of textures and surfaces available in fine art papers offer imaginative artists a rich area of exploration. So get creative! Experiment with confidence on fine art papers with the HP Photosmart 8750 Professional Photo Printer.

Conclusion

Nine-ink printing, introduced by HP with the new HP Photosmart 8750 Professional Photo Printer, sets new performance standards that photographers will find irresistible. The new printer reproduces substantially more of the standard color space used in most digital cameras and monitors – also, the blue hues in common photo subjects are richer and deeper than ever. Printer, ink, and paper are specially engineered to work together for extraordinary printed image detail in contrasting colors and shadows, the full range of light to dark shades in every color, plus truly neutral grays and blacks. You see crisp autumn skies or tropical seas and snap a digital picture – and HP places those vivid blues on paper, capturing the colors you saw in long-lasting prints.

⁷ Using the HP 97 Tri-color, the HP 101 Blue Photo, and the HP 102 Photo Gray Inkjet print cartridges on HP Premium Plus photo papers. Based on Wilhelm-Research.com light-fade testing under glass for similar systems (as of November 2004); for more information on additional permanence testing factors, visit <http://hp.com/go/premiumplusphoto>.

⁸ In internal testing at the HP Image Permanence Labs with Arches and Lanaquarelle hotpress watercolor papers. Light-fastness under glass: 24 – 37 years (tested at 28 C and 30% relative humidity).