Using Synthetic Material for UV Inkjet and Latex Printing

Bigger, stronger, faster - that is how the HP Latex 3000 stands in comparison to previous HP Latex models. The HP Latex 3000 is a heavy duty, industrial printer that provides more opportunities for printing and boasts many beneficial new features.

The 126” HP Latex 3000 prints up to 120 square meters an hour. At a resolution of 1200 dpi, the print quality of the 3000 arguably rivals that of the HP Indigo, light jet and offset printing platforms. The color gamut of the HP 881 latex inks is also much wider than UV or solvent inks. With the HP Latex 3000, you can not only run with the big dogs, but you can probably out run them too.

Recently, while conducting printing tests at Nite-Bright Sign Company in Fort Myers, Florida, I had the opportunity to see a HP Latex 3000 run. The company’s president, Dave Mathey was so impressed with the speed and quality, he purchased two of the printers. With a price tag of $450,000 per printer, Dave had to be convinced of the equipment’s value. After witnessing it run, I also became a believer.

Compared to other HP latex printers, the HP Latex 3000 utilizes a unique heating system. The printer subjects heat sensitive materials to much lower temperatures than other models, such as the HP 850, HP 25500 and the new HP 360. Its significantly cooler printing and curing zone temperatures (about 10° to 20°C), allow the print to dry completely before the media is wound up on the take up roll.

Lower printing and curing heat allows Nite-Bright to print on a wider range of substrates, including banners, flexible sign face material, pressure sensitive vinyl films, wall covering material and synthetic paper.

During the tests at Nite-Bright, we printed RTape’s 5 mil Synaps®, a top coated polyester film. Extremely high heat can deform this media. Previously, printing on this film with other HP Latex printers required adjustments to heat setting, pass rate and ink density. While this resulted in a good-looking print, the ink was never completely dry.

With the HP Latex 3000, however, no setting adjustments were needed. Using a standard profile, the printed sheets looked excellent, were completely dry and also laid flat with no deformation of the media.

The more efficient heating system is different than that used in the 300 series printers. The printing zone uses infrared heaters, which operate at lower temperatures. “Energy consumption is about half of the older generation HP 850 printer,” says Nite-Bright’s New Business Development Manager, Charlie Vendeville. “That significantly reduces our operating costs.”

Because infrared printing zone heaters cure the media faster, the material can also advance through the printer at a faster speed.
rate. “Printing with the HP 3000 we can also handle twice the weight of the previous model,” Vendeville says. “That way, we can print two rolls of the same media at the same time.”

Vendeville explains that in today’s business environment, customers typically want their jobs produced within a couple of days. Most of their jobs are printed at the six-pass mode. “We prefer to print at this setting, because the ink density is greater. We feel that the increased density produces more robust color and better durability.” Since most of Nite-Bright’s work is for outdoor applications, the denser saturation is more fade resistant and resists abrasion better.

To increase output, printers can also print at the three-pass mode. “Printing at maximum speed, we don’t lose anything with respect to quality,” Vendeville says. “Whether you use the three-pass or the six-pass mode, the resolution remains at 1200 dpi. Whichever print setting you use, we feel that the print quality is much better than most of the other technologies on the market.”

Another new, beneficial feature of the HP Latex 3000 is increased ink capacity. The new six-color printer features five-liter ink cartridges. Its pigmented inks include black, cyan, light cyan, light magenta, magenta, and yellow.

The high resolution, photographic quality of the printing on the HP Latex 3000 allows Nite-Bright to best serve the retail market with high quality printing for indoor applications, such as wall graphics, point of purchase posters and displays.

Because the HP latex inks are pigmented, they are also perfect for outdoor applications, such as fleet graphics, building graphics, signage and billboards. The inks are designed to embed onto the surface of the substrate, providing exceptional ink adhesion. This provides durability for outdoor applications to resist abrasion, and withstand bleaching effects of the sun and high temperatures.

The new ink also boasts the addition of an anti-scratch agent. This material forms a very thin, protective film on the surface of the print to improve scratch resistance and increase outdoor durability. Prints without lamination provide up to three years of useful service life, while graphics protected with over laminate can last up to five years outdoors.

The new HP latex inks are designed to interact with the polymers of the new HP Latex Optimizer. Here’s how the two components work together: first, a thin coating of the colorless optimizer polymer is printed onto the substrate. The inks are then printed on top of this layer. Because the ink and optimizer have different electrical charges, they attract to one another. This locks the droplets of ink onto the substrate, holding it in place until it is cured. With the ink immobilized, droplets cannot mix with one another; which is known as bleed or coalescence. By keeping the ink droplets separate from each other, colors are more vibrant and image detail is sharper.

“The latex ink is very flexible, which makes it ideal for vehicle wraps,” Vendeville says. “If we had to, we can turn out a fleet graphics job in one day.” After printing vinyl films, the graphics can be immediately laminated. Printed graphics can be delivered to the customer and installed the same day. “It’s that type of service that builds customer loyalty and repeat business,” he adds.

The water-based composition of the new latex ink also creates an environmentally conscious product. This creates additional benefit by allowing print providers to offer their customers a greener product with no residual solvent odors. Using the third generation of latex inks and the latest generation of thermal print heads, the HP Latex 3000 is revolutionizing roll-to-roll printing. It delivers increased production capacity and high quality printing on a wide range of substrates at speeds that industrial printers, such as Nite-Bright, require.