EFI™ WHITE PAPER SERIES

The New Standard for LED Quality and Productivity

How the EFI VUTEk LX3 Pro redefines performance and TCO

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Introduction

Inkjet technology continues to evolve rapidly, which creates an influx of new products and capabilities into the market, and, in turn, a wealth of growth opportunities for print providers. Each inkjet printing system has its own set of features and benefits in terms of supported media, print speeds, image quality and color gamut, media handling options, and total cost of ownership, to name just a few.

Navigating through the complex and crowded world of production inkjet printing to select the most appropriate solution for your business needs, and those of your customers, today and as your business grows in the future may seem daunting.

This white paper will guide you through the latest inkjet curing technology, define new standards for print quality and productivity, and point out high-level factors that can immediately impact your total cost of ownership and bottom line.

The latest in inkjet curing–LED cool cure technology

Today's graphics display companies and print service providers are searching for new revenue sources as well as improved production efficiencies. LED curing technology opens doors to new, creative opportunities to increase profit opportunities, and can drive down operating costs and reduce your environmental footprint. Let's take a closer look...

The cooler cure temperature of LED lamps allows you to print on media that is thinner and heat-sensitive, such as thin films, specialty papers and corrugated, for example, that might otherwise be damaged or destroyed during other curing processes. The use of specialty and added-value media opens doors to unique, premium-margin applications.

It is also possible to print faster using LED ink, than with aqueous and solvent inks, for example, which is particularly important for high-production applications. Since LED lamps are instant on/off and require less maintenance, your utilization, productivity and uptime is maximized.

LED technology also drives down operating costs with up to 82% less energy consumption, according to a Fogra study[1], fewer consumable parts (LED lamps have an operating life of about 10,000 plus hours and are covered under EFI's service contract as part of the system and not a consumable), and reduces waste with consistent color output with LED bulbs that do not degrade over time.

Finally, you can satisfy customer requests for a greener print solution with low VOCs, lower power consumption, and less waste and consumables with LED.

A paradigm shift in quality and performance

Advancements in EFI™ hybrid flatbed/roll fed platform innovation and print head manufacturer technology have shifted the way we can think about and express the relation between quality modes and productivity, especially in terms of how they meet your customer's demands—all while ensuring you achieve your profitability plans.

So what does this mean for your business? Take a look at how each quality mode is defined in Table 1. Pin down the quality levels that are your "money" modes and, then, determine if the productivity at that quality level is a fit for your business.

Table 1

QUALITY MODE	PRODUCTIVITY
Express	4 color, 600 dpi 3400 ft^2 (318 m^2) per hour 94 boards per hour
Distant View / Outdoor No visible artifacts from a viewing distance of 10 feet (3 meters) or more	4 color, 600 dpi 2300 ft^2 (215 m^2) per hour 64 boards per hour
Production No visible artifacts from a viewing distance of 6 feet (1.8 meters) or more	4 color, 600 dpi 1760 ft^2 (16 $3m^2$) per hour 46 boards per hour
POP Quality No visible artifacts from a viewing distance of 3 feet (1 meter) or more	8 color, 600 dpi 1200 ft^2 (112m^2) per hour 34 boards per hour
High Quality No visible artifacts from a viewing distance of 1 foot (30 centimeters) or more	8 color, 600 dpi 920 ft^2 (85m^2) per hour 24 boards per hour
Ultra Quality No visible artifacts from a viewing distance of less than 1 foot (30 centimeters)	8 color, 1000dpi 516 ft^2 (48m^2) per hour 15 boards per hour

What we are seeing in the market is that the new four-color print modes highlighted above change the parameters related to quality expectations at high-speed production. Four-color print modes can now be used for a majority of work, while the eight color modes can be selected for when the highest

[1]EFI's VUTEk LED printers show energy reductions of up to 82% when compared to devices with conventional mercury arc lamps. Calculations from Fogra's Energy Efficiency Project, "Energy efficiency of large and small format printing systems."

image quality is paramount to anything else in the production of your customers' jobs.

Media handling advancements driving production efficiencies

As production inkjet printers continue to get faster, media handling options and automation become increasingly important. Platforms that support both rigid and flexible media with the ability to switch from one to the other quickly, without sacrificing production speeds, allow you to diversify your offerings with a single device. It's also important to consider a platform that offers productivity boosting features, such as continuous print, which allows you to minimize your non-print time when printing a job, and other media handling options, such as jumbo roll winders or automated loading and unloading, as your volumes and business grow. Advancements in media handling not only help drive efficiencies into your production process, but can also reduce costs in a way that makes high-volume, lower-margin work more profitable.

Financial investment and operational costs

Your return on investment is based on more than just initial cost. Less expensive models don't necessarily translate to the greatest value. Ink, maintenance, media, uptime and process improvements all factor into the equation. The cost for the latest technology can be substantial, but if you choose the right printer, you're assured the best overall value. The cost for not having the latest technology is even more substantial–it may even cost you your business.

Understanding total cost of ownership

The "total" cost of owning a production inkjet system includes everything from energy consumption and ink to substrate costs and special maintenance requirements above and beyond that of the printer's purchase price. Flexibility plays an important role here, because the more flexible the solution, the greater the value to your business. You can recoup your capital investment costs by transferring current jobs that are more cost effective or efficient on your new printer, or expanding your services to increase your profits with faster turns on higher volume jobs or higher-margin applications.

How to immediately lower operating costs with LED

As you begin to evaluate the total cost of ownership for a particular system, it's important to look at a few high-level factors that can immediately reduce your operating costs.

As we discussed earlier, LED cooler cure technology allows you to print on thinner, lower-cost media. Since it's lighter-weight, you also can save on shipping costs that can impact your bottom line or pass along savings to your customers for added value.

Energy assessments carried out by German research company FOGRA confirmed that EFI's VUTEk® LED curing printers show energy reductions of up to 82% when compared with devices that use conventional mercury arc lamps. The calculations of Fogra's Energy Efficiency Project ("Energy efficiency of large and small format printing systems") demonstrated that users can save around $21,000 annually on power consumption in a typical production environment, an important factor for businesses pricing up jobs on both rigid and flexible materials.

Even in print-ready mode, EFI LED printers are shown to save up to 77% in electricity usage, simply because the LEDs are off, unlike mercury arc lamps that still consume power when the machine is idle between jobs.

This adds to the functional flexibility incorporated into LED-curing printers, with their ability to work with thinner and more sensitive materials, as well as lower cost media.

LED has additional benefits that lower operational costs, namely the lifespan of the curing system. LED lamps are typically rated for 10,000 to 20,000 hours, which means fewer consumable parts and less maintenance over time. Also, LED bulbs typically don't degrade like traditional arc lamps for more consistent curing, better color consistency and, therefore, less waste.

Conclusion

Innovation continues to propel the production inkjet market forward, making the selection of a system that's right for print providers ever challenging. The latest LED curing technology, new levels of print quality and productivity, and insight into just a few factors that can immediately impact your bottom line should provide a solid jumping off point as you begin to evaluate the technologies available today.

In these competitive and complex times, you have to be prepared for profitable growth. Don't let the limitations of other print technology be the disruptive and unpredictable changes in your business. If you're interested in staying competitive, call EFI at 1-800-875-7117, or visit www.efi.com for more information.

EFI fuels success.

We develop breakthrough technologies for the manufacturing of signage, packaging, textiles, ceramic tiles, and personalized documents, with a wide range of printers, inks, digital front ends, and a comprehensive business and production workflow suite that transforms and streamlines the entire production process, increasing your competitiveness and boosting productivity. Visit www.efi.com or call 650-357-3500 for more information.

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