INNOVATIONS IN DIGITAL DECORATING

By Bill Leek

The Evolution and Resurgence of Color Laser Transfer Technology

The history of the Color Laser Transfer industry began in 1989 just about a year after the first Canon CLC copier was introduced. There were several events that led up to the Canon introduction in 1988. Color toners were first developed during the 1950s. In 1968, Xerox introduced a color copier that utilized sublimation technology rather than traditional electrostatic design. In 1973, Canon released their first electrostatic color copier. The initial color copiers were very expensive and required equally expensive maintenance contracts. The cost per copy was measured in dollars, not in cents. Only large companies and service bureaus could afford color copier technology. It would take nearly 20 years for the color copier to gain market penetration and acceptance.

Simultaneously, several producers were developing T-shirt transfer papers for color laser copiers. The initial results were less than ideal. The transfer papers had thick coatings and were cold peel. They did not always transfer images and lettering completely and would often jam in the printer. Despite all the limitations, it became apparent that there was a huge potential market for custom T-shirt decoration using color laser transfers. In the early 1990s, several excellent transfer papers were released that overcame early problems and limitations. Color copier prices gradually came down and the demand for transfer papers increased.

QMS released the first low-cost standalone Color Laser Printers in the mid-1990s. Panasonic became very supportive of the color laser transfer industry and supplied several excellent color copiers with competitive prices. The combination of lower prices, better quality and simpler operation opened up the laser transfer market to a wider range of businesses, retail outlets and individuals. Despite some new competition from other transfer technologies, the 1990s was a great decade for the color laser transfer market.

COMPETITION, CONFUSION, CHALLENGES AND CHANGE (2000-2009)

By the year 2000, things had begun to change in the heat transfer decorating market for both T-shirts and hard goods. Inkjet T-shirt transfer papers had improved, and the use of pigmented inks would soon enhance washability and durability. The earlier introduction of sublimation inks for Epson piezo printers had created a new market for digitally decorating poly-coated metal, plastic, ceramic, wood and nail products. Simultaneously, the color laser printer market was expanding with new models and lower prices.

By the mid-2000s, there were well over 500 models from numerous manufacturers. While this was good for the printer manufacturers, and their business and home-based customers, it was problematic for the color laser transfer industry. Many of the new laser printers were not compatible with popular laser transfer papers. New proprietary technologies of the different laser printer manufacturers that included toner composition, imaging processes...
and fuser design made compatibility between laser printers and transfer papers difficult to achieve.

In addition, there were issues with the paper paths, paper settings, fusers and printer access that could cause frequent paper jams and poor print quality. Worse yet, most printer manufacturers were not concerned. They designed their printers for millions of traditional users, not what they considered the smaller niche color transfer market. The new printers were less expensive to build, ship and maintain.

The major issue during this period was the manufacturers' decision to build oil-free printers with new toners that used fuser oil substitutes encapsulated in the toner that fused at higher temperatures. At the time, popular transfer papers were optimized to work with laser printers that used fuser oil. This created a major problem for the transfer industry. The number of compatible printer/transfer combinations was drastically reduced.

Fuser oil laser printers had provided several advantages; most important, the fusers operated at lower temperatures. Second, fuser oil reduced the amount of static build up and therefore reduced the frequency of paper jams. Last, fuser oil provided increased lubrication. In addition, fuser oil produced a glossy finish on transfers and prints that many copier users had found desirable.

Many transfer papers that performed well with fuser oil printers did not work at all with the high-temp oil-free color laser models. This created a crisis for many transfer paper suppliers and the users accustomed to a reliable digital decorating process. Some transfer paper suppliers responded well to the changes. Many others did not.

It became very apparent that things had to change. A system approach had to be taken. The best printers compatible with laser transfer printing, using the most durable toner, had to be matched with the best quality color laser transfer papers. With so many dif-

A crystal clear acrylic award with opaque white and dense color decoration.

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fizers. LED printers use an array of LEDs in place of a scanning laser light source that requires many moving parts. Oki data printers offer several significant design advantages: OkiData provides a completely straight paper feed path that minimizes paper jams. Faster performance and access to the fuser assembly are both very good. Toner durability and fabric washability is excellent. UV resistance on hard goods is also excellent.

A COMPLETE SYSTEM APPROACH

By 2010, the first goals necessary for resurgence and growth had been achieved. Most users and suppliers had come to view color laser transfer installations as systems rather than groups of individual parts. Quality color laser printers, transfer papers, software and heat presses had to be configured and tested together to ensure optimum quality and reliability.

This set the stage for a revolutionary development: CMY color plus White toner transfer!

INTRODUCTION OF WHITE TONER LASER PRINTERS

The addition of dense white toner exponentially expands the capabilities of color laser transfer printing. For the first time, it is possible to apply white or virtually any color to black, dark color and crystal clear hard surfaces and fabrics.

In 2011, OkiData introduced their first CMY+White toner laser printer: the A3 size pro920WT model. Last fall, they introduced the less expensive C711WT A4 size model. Concurrent with the printer release, OkiData approved five transfer paper/media products from TheMagicTouch for use in the C711WT. TheMagicTouch has been a worldwide technological leader in the development of transfer papers for over 20 years. The five approved products include:

- CPM — Hard Surface Transfer Paper
- CL Media — Label Media Paper
- Tattoo — Temporary Tattoo Transfer Paper
- WoW 7.5 Professional Self-Weeding Dark Fabric Transfer Paper
- DCT — Water Slide Decal Paper

In addition, TheMagicTouch includes ‘Space Control’ white toner RIP software with each C711WT printer it sells. This software precisely controls the placement and density of the white toner on each transfer and provides exact settings for each media used.

The C711WT is the ideal printer for creating laser color transfers on all color surfaces. The high-definition color toners and dense white toner are durable and UV resistant. Images and text are sharp and vivid. White toner can be printed by itself or used as a base to create dense, light colors on black, dark or clear fabrics and hard surfaces.

WoW 7.5 self-weeding fabric transfers are very soft and blend with the fabrics. You can close your eyes and run your fingers across the transfer and just barely feel it. In addition, wash and dry durability as well as long-term wear durability is excellent.

CPM has been a leading laser transfer paper for hard goods for many years. Paper release is excellent, and transferred toner adheres well to a variety of hard substrates. CPM hard surface papers can be utilized to decorate a wide range of uncoated dark color products that include plastic, stone, metal, ceramic tiles, award plaques, diaries, leather, phone and tablet covers, and binders, as well as glass and acrylic awards.

Clear custom decals with vivid colors and bright whites can
be produced for hobbyists, artists and crafts people. Vivid color

tattoos can be created for the hot temporary tattoo market. There

are thousands of applications, only limited by your imagination.

Digitally decorating dark fabrics as well as clear and dark hard

substrates is exciting and can be very lucrative.

Thus far, the OkiData / TheMagicTouch white toner configuration

appears to provide the best fully integrated white toner transfer

system solution. The two companies have worked together for

years, and TheMagicTouch provides a single point of contact for

customer support.

Initial investment is much lower than direct garment and hard

substrate printing alternatives. Operation is simple. In addition,

maintenance and overall operating costs are low.

Bill Leek of Houston, Texas has over 33 years' expe-

rience in digital decorating system development and

graphics design. He has developed several lines of

color imprintable products utilizing inkjet, subim-

ination, and color laser transfer technologies. In addi-

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