THE DIGITAL SCREEN ROOM

Mark Evans of Exile Technologies Ltd explains why the digital screen room is no longer just a concept and examines its advantages as well as its impact on press productivity

Mark Evans, Managing Director of Exile Technologies

Above and below: Pin-registration system on the computer-to-screen MHM SPYDER II

Screen printers at any t-shirt print shop which has already invested in computer-to-screen (CTS) technology know that the digital screen room is here and will benefit them. The real measure of productivity – and ultimately profitability – is less about how many shirts can be printed per hour and more about how many jobs they can run per shift or per day.

At FESPA Expo 2013 in London, an M&R press operator set a world record of over 2,100 t-shirt prints in one hour. In real world conditions, such print speeds are not sustainable. No press operator can realistically keep up that sort of pace. But 500–800 shirts an hour may be practically achievable from a modern, fully automatic carousel press system with two press operators in attendance.

However, rather than focusing on how fast a print carousel can print, it is the press set-up times or job change over speed that is perhaps the true test of a print shop's productivity.

NEED FOR SPEED

The expectation of almost immediate online ordering and fulfilment has generated the need for faster and shorter print runs. For those shops serving the fashion industry, the requirement for faster press turnaround times has never been greater.

Pre-press automation – specifically the 'digitalisation' of the screen room via the adoption of a CTS system – represents the biggest single step a medium or large textile screen printer can make to improve productivity and reduce labour costs.

A medium-sized shop with one or two automatic carousel presses could potentially increase production capacity by adding an additional press. But this also requires adding more labour content to run the extra system: potentially one or two extra print-room staff, depending on what speed they want to run the press. Although this represents an increase in production capacity, it does not necessarily translate into increased productivity as extra labour has to be considered.

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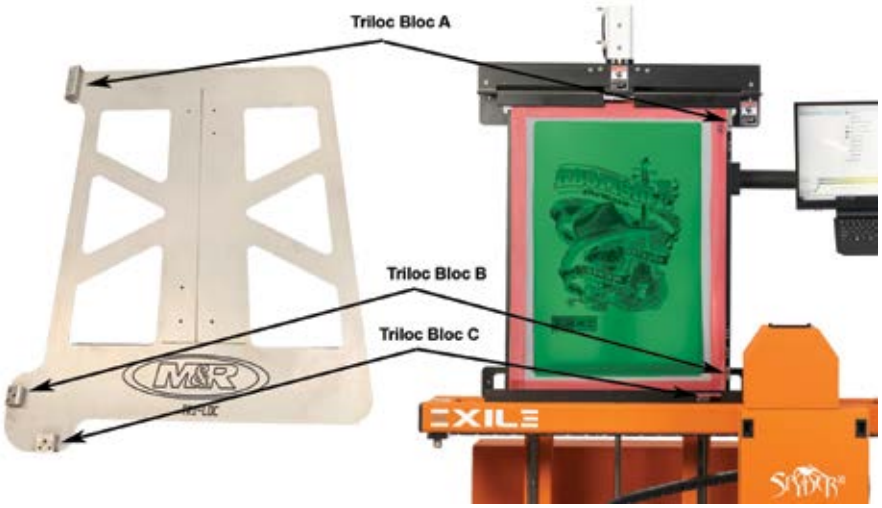

M&R Tri-Loc pallet with corresponding Tri-Loc-compatible blocks on SPYDER III CTS

VASTEX's three-pin pallet jig

PRODUCTIVITY INCREASES

As an alternative, investment in a CTS system can have such a massive impact on press turnaround times so as to render the investment in an additional press system unnecessary.

By adopting CTS production, a print shop gains the benefit of the screen image having been 'pre-registered' on to the screen before it even reaches the press room. All screens produced this way remove the risk of human error because the mechanics of manual registration of film positives is replaced by a digital-registration process whereby the image is placed in position and printed via a computer.

This translates into significantly faster screen production meaning that a single-screen room operator can image, expose and develop in excess of 200–300 screens per day. This in itself represents a significant labour saving, but the biggest cost savings come in the reduction of press turnaround times. When a press system is sitting idle it causes a loss in productivity. If set-up times can be reduced from say 45–50 minutes to maybe five or 10, there will be a major impact on production and could result in being able to run an extra two or three jobs, per press, per shift.

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To achieve this, the digital-registration process needs to be used in conjunction with a reliable and accurate mechanical registration system on the press. Examples of this are the M&R Tri-Loc system which uses a three-point registration set-up or MHM's pin-registration system which uses four locking pins to hold the screen in the correct position. In fact, most other press manufacturers have similar systems. ROQ offers two options – a pre-registration plate with a three-point mounting system and a pin-based system similar to MHM's four-pin system. There are also third-party pallet-registration kits available. For example, Vastex's VRS (Vastex Registration System), which also uses a Tri-Loc style three-point system, can be used to retrofit a mechanical-registration system onto other manufacturers' press systems.

MIRROR REGISTRATION

Most of these registration systems also include a film-registration table or 'pin board' which is used to accurately position the film positives. However, there is still some human error in this approach which can be completely eliminated with a suitably equipped CTS system. To work properly, the same mechanical-registration system, used on the press, needs to be fitted to the CTS system. Then when the screen stencil is digitally printed, the image position 'mirrors' the correct position on the press.

These mechanical-registration systems vary in complexity and cost. When used in conjunction with a comparable registration system on the CTS system, the result is much faster press set-up times, especially with more complex multicolour, simulated process jobs.

SUPER SAVINGS

A CTS system may save a customer as much as $10–20 thousand per year on consumables by eliminating film positives, although that may only be a small cost saving when compared with the productivity benefits from vastly reduced press set-up times.

There are several compelling reasons for making the leap to CTS, such as improved stencil quality and cost savings. However, automating the screen-production process with digital-image placement and registration can cut down press turnaround times by 4–5. By minimising the downtime of the press systems and improving productivity and profitability, a CTS system can pay for itself in just months. ■

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