DOES A HIGHER RESOLUTION OF IMAGE CREATE BETTER RESULTS?

Sandra Woerle, Marketing, SignTronic/Grunig-Interscreen, poses this question and details the comparison made to achieve the best outcome

SignTronic, together with other suppliers, have joined forces to show that the number of dpi, together with lower resolutions of image, can achieve perfect results. In the use of lower resolutions, the condition of an optimally selected mesh is essential. In addition, a copying emulsion needs to be precisely adapted to the mesh.

ONE VISION – THE PERFECT SCREEN

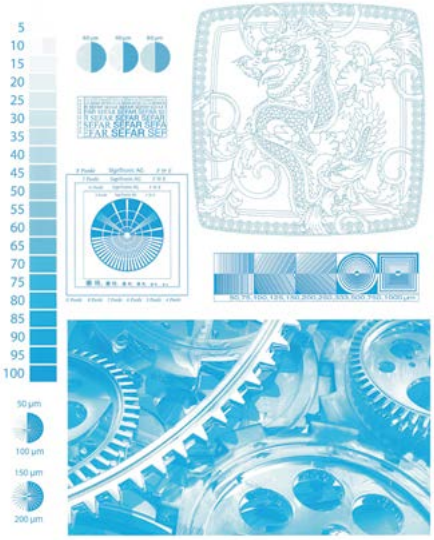
For the comparison between higher and lower resolutions, Sefar supplied the PET 1500 screen-printing mesh as well as its PME type. KiWo provided the high-resolution Dual-Cure Azocol Z140 and the SBQ screen-printing emulsion, Polycol W-HR. The exposure was carried out using the Computer-to-Screen (CtS) direct-exposure system supplied by SignTronic. It was equipped with the latest LED_Q4 technology and 1,270 dpi resolution, as well as HR2 with 2,400 dpi.

A QUESTION OF QUALITY

The quality and reproduction of a screen-printed product is only as good as the quality of the stencils. Unfortunately, this is a topic which can be neglected in everyday applications. As service providers, it is essential to realise that this field has huge potential for improvement.

Many are convinced that the quality of the screens will automatically be increased when exposing with a higher resolution. It is also believed that using the 'best mesh', combined with a 'new and absolutely unbeatable emulsion', will guarantee expected results.

Nevertheless, experience has shown, that in many cases, this is unnecessary. In other words, the procedure required for a perfect screen, does not always entail a lot of effort and expense to achieve the desired quality of the best printed image.



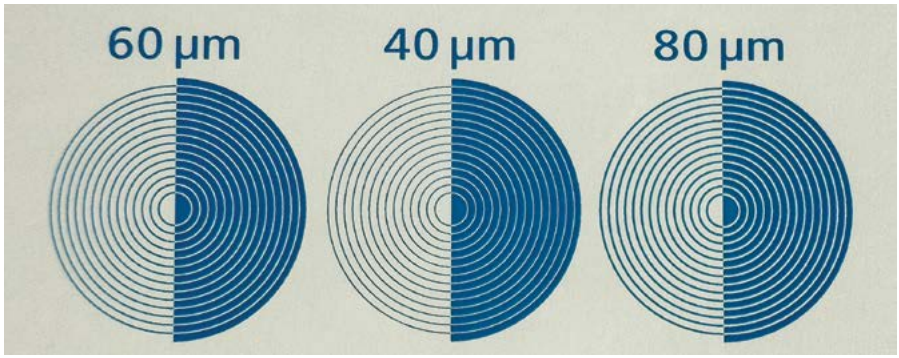
The complete print sheet of the comparison with half-tones, gradient, fine lines, etc

WINNING COMBINATIONS

Many printers go to a great deal of trouble to reduce exposure times by using faster emulsions. The aim is to save on various material costs by using cheaper meshes. Consequently, the expectation is that exposure quality will achieve higher resolutions. However, these steps could easily be avoided by using perfectly interacting components.

Many screen printers remain unaware that using optimally co-ordinated components, with correctly calculated

SignTronic's StencilMaster Computer-to-Screen, direct-exposing unit



Crossing of positive and negative lines

A section of the chart with perfectly printed halftones and gradients

exposure times, can achieve the desired results. This quality can be acquired with less effort and lower costs.

If the mesh, emulsion, resolution and exposure time are perfectly co-ordinated, there is no need to improve results by using a higher number of dpi. With the correct amalgamation, perfect results can be achieved with a resolution of 1,270 dpi.

SIGNTRONIC SOLUTIONS

With its headquarters in Switzerland, SignTronic is one of the leading manufacturers of high-quality CtS, direct-exposure systems. The company is often confronted with the same customer requirements – less time, lower expense and the best possible quality. The company constantly receives requests for high-resolution equipment. However, after studying the company's product range and application, it often becomes clear that these high-end systems are unnecessary. Thanks to SignTronic's internal 'Screen Lab' – where customers and potential buyers are welcomed – it can be quickly and convincingly demonstrated the quality possibilities achievable with a standard 1,270 dpi version. This needs to be combined with a perfectly co-ordinated interplay of components. Such a system can also reproduce perfect gradients and halftones of up to 120 lpi (47/cm).

"In the use of lower resolutions, the condition of an optimally selected mesh is essential"

The crucial and determining point, in this respect, is the quality of the optical system, together with high-quality, auto-focusing. SignTronic's experience shows that – in spite of a high resolution – the result will still be blurred if a less-than-perfect focus is used. The company is aware that not all resolution is the same and that the pixels also need to be taken into account. A specified dpi number does not always mean that these will be directly transferred to the screen and that the printed image will be exposed.

SignTronic offers resolutions up to 3,040 dpi for the StencilMaster models. The difference between some other CtS suppliers is the fact that the pixels are not interpolated. This means that with an offered HR3 resolution, with 3,040 dpi, the actual number of dpi with a pixel size of 8.35µ will be directly transferred onto the screen. The question of whether a resolution is interpolated or not, makes an enormous difference to the exposure and consequently the print quality. However, the decisive factors in this respect are the quality requirements and needs of customers.

"Many printers go to a great deal of trouble to reduce exposure times by using faster emulsions"

CONCLUSION

This comparison cannot be completely generalised. The screen-printing process is influenced by a number of different factors. Even if the industry succeeds in standardising these factors, new challenges can unexpectedly appear. However, too many misconceptions exist in the market as to the ideal exposure. In addition, the optimal associated components, such as meshes and emulsions, can be misunderstood. Based on this comparison, it can now be unequivocally shown that investing in supposedly better components or more expensive equipment is not necessary. ■

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