Digital versus screen printing

Or: how a manufacturer of custom input systems learned to leverage the strengths of two processes.

Hoffmann + Krippner, Buchen, Germany.
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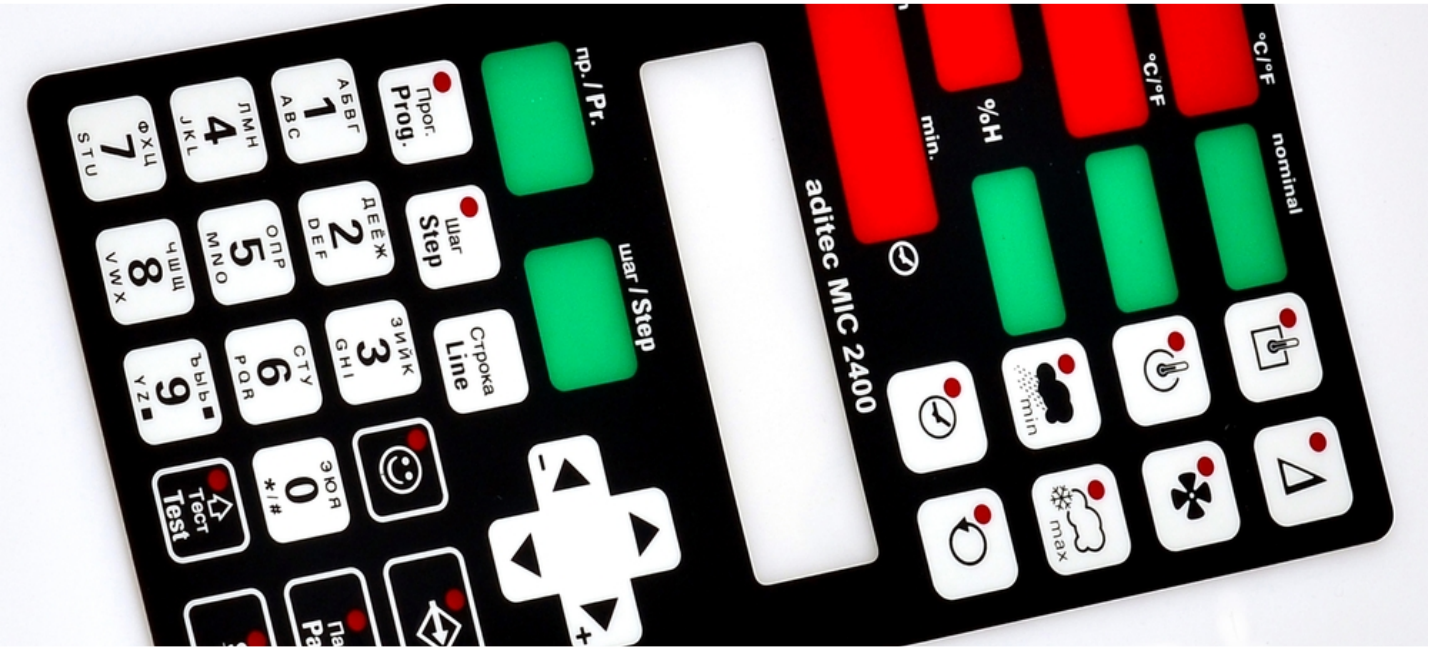

Buchen in southern Germany is home to Hoffmann + Krippner, a company with proven expertise in screen printing. Founded in the 1970s around the nucleus of ‘technical screen printing’, the business even went on to become a training workplace for screen printers in the region. In use there since autumn 2015 is a digital printing machine – a swissQprint Oryx 2.

Fateful request

The customer request that set Hoffmann + Krippner on a lengthy search probably arrived like this: ‘Mr Beckert, could you deliver this changed colour design for our new input device by tomorrow? There is a trade show coming up and we need a prototype to show visitors’. Research into the feasibility of providing this rapid turnaround ended with investment in a technology never before used at the printing plant in Buchen im Odenwald.

Doubting workforce

A murmur went through the workforce at the news of this ominous addition to the machinery. Differences in quality between the various printing processes used by Hoffmann + Krippner for specialised applications were simply too great. Would this really be a wise investment in the future?

Advantages of silkscreen printing

Next to colour fastness and the thickness of the ink film, the outstanding thing about screen printing is its durability. UV resistance, abrasion resistance and impeccable colour brilliance are its unique plus points. No doubt about it – screen printing can be described as the most flexible and universal printing method around in terms of substrates, shapes and print formats. The variety of printable materials is practically limitless: plastics, paper, board, foils, metal, glass, wood and even fabric are just a few of the options available.

Print masterpieces

Hoffmann + Krippner uses screen printing not only for front panel foils and acrylic glass, but also for electrical circuits. Printed electronics is the name for a screen printing technique to apply electronic components, assemblies and application-specific elements onto films and flexible displays using electrically conductive inks and pastes. Printed electronics became an established part of the Hoffmann + Krippner repertoire in 1979. Through subsequent years, the company optimised its printing technology expertise and refined the results. Thus, the anti-drilling foils that Hoffmann + Krippner makes for tamper protection in payment systems are print masterpieces. Likewise, Hoffmann + Krippner has printed electrical resistors and potentiometers for integration with input systems for over twenty years. So why digital printing?

Custom-made keypad foils are a speciality of Hoffmann + Krippner.

Screen vs. digital printing

Getting started with a screen print takes quite a lot of preparatory work: first, the design is created. Then it is colour-separated and exposed onto photosensitive films that go to make a screen mesh. Next come lengthy set-up times on the machine, and finally the actual print. In short: screen printing has limited capability for handling rush jobs. Now digital printing comes into the game. It is ideal for one-offs and small print runs. But the commonplace resolution of 600 dpi leaves something to be desired, and ink formulation options are limited compared to screen printing. That is, unless you can find a manufacturer whose machines deliver results

that seasoned screen printing experts can barely distinguish from their own product. ‘We found exactly this manufacturer in swissQprint, and with that a digital printing machine of corresponding quality: the Oryx 2’, says Thomas Krekeler, Director of Sales & Marketing at Hoffmann + Krippner.

Striking digital print quality

The swissQprint large-format printer operates with a maximum resolution of 1080×1080 dpi. That is sufficient for the thinnest lines, colours and shapes. Its droplet volume is 14 or 9 picolitres, with individual droplets measuring just 0.045 mm (0.0018 in). ‘To speak of size here sounds ridiculous’, laughs Thomas Krekeler, adding: ‘But in terms of droplet output per second, you could use size in the sense of sizeable’. 600 million droplets per second can exit swissQprint print heads in the best case. And people wanting to make fine art prints are no longer compelled to use offset: just rip the print file as a fine art job and send it to the Amber output software. It automatically sets the droplet volume to 9 picolitres and begins printing with visual resolution up to 2160 dpi.

Argument for the Oryx 2: the large colour spectrum held out a promise of colour accuracy in line with customer specifications.

Striking arguments

Thomas Krekeler summarises: ‘The print quality resulting from this resolution and colour accuracy was one of many arguments in favour of acquiring the Oryx 2’. Add to that the use of UV-resistant digital printing inks and the prospect of printing onto glass or with white ink. Extremely lean prepress and short set-up times would make it possible to offer fast-turnaround delivery for samples and small series. The large colour spectrum held out a promise of colour accuracy in line with customer specifications. Last but not least, preparing the data electronically would ensure reproducible results. ‘The Oryx 2 has already fulfilled these requirements many times over in practice, as well as convincing the biggest doubters among the workforce’, says Krekeler.

Digital complements screen printing

Digital printing will not supplant silkscreen at Hoffmann + Krippner. But the Oryx 2 is sure to extend the options and give the printing department a boost. And Mr Beckert will in future be able to field that customer question with a confident ‘Yes, we can’.

Company	Hoffmann + Krippner, Buchen, Germany
Website	www.hoffmann-krippner.com
Segment	Industrial printing
Established	1972
Employees	220
Printer	Oryx 2
References	Medical technology, Mechanical engineering, Equipment & plant engineering