CONSULTANCY FOR PREPRESS

What has happened since Marks-3zet acquired Illies' 'Newspaper Prepress' division? **Page 5**

INTELLIGENT FINISHING PROCESS

Print finishing is very much in vogue and its production is becoming smarter and smarter. **Page 1**

SCANNING OR SEARCHING?

Often it is the little things that take a company forward – e.g. using a barcode scanner. **Page 10**

Deutscher Drucker

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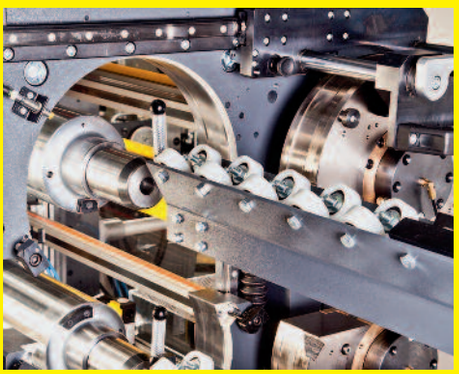
Packaging production
A new way to efficient embossing



■ Inline and in-register embossing of packaging is complicated and expensive. Now a new kind of interchangeable calendering sleeve opens up the possibility of simpler and cheaper rotary embossing. **Page 14**

Paper reels
Splices for optimal performance

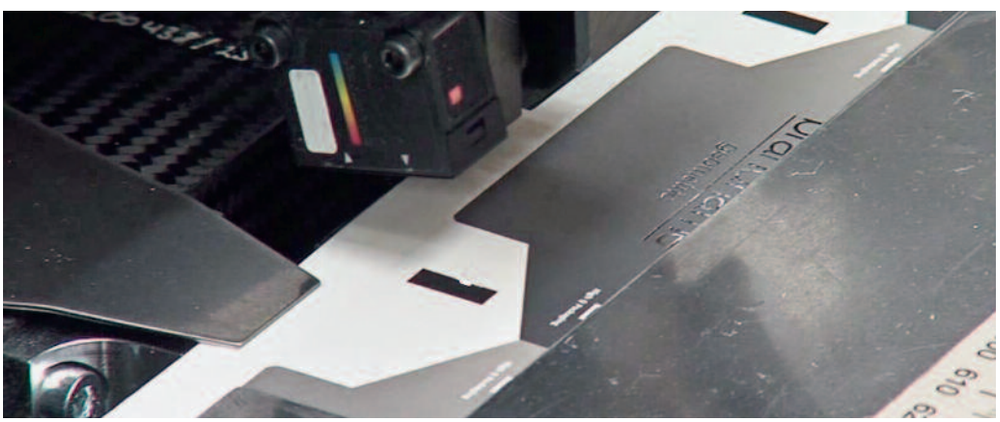
■ Few events can spoil a web printer's day like a web break. The sections of web which are spliced together with adhesive tapes are especially vulnerable. Experts from 3M explain how web splicing problems can be minimized, and splice success rates maximized. **Page 8**

↗ Imprint **Page 13**

Hot foil stamping becomes an "intelligent" finishing process

FOILING ■ Effect coating, film lamination, cold foiling or hot foil stamping are the kinds of processes that give the printed product precisely what it needs to 'gleam' visually and to be tactilely 'feelable'. The finer the finish, the more saleable the product. Print finishing is very much in vogue and its production is becoming smarter and smarter. Print finishers, accordingly, need stamping systems with smart functions.

By Frank Lohmann
Editor, Printing and Finishing
Deutscher Drucker



The Smart Register sheet register control patented by Gietz AG.

■ Enhancing printed products optically and tactilely by means of foil stamping is still a key element in print finishing. Hot foil stamping and its structural and relief embossing variants are brought into play to create a real experience for the end consumer. Well done, these variants have the potential to achieve an outstanding optical and tactile result and leave the limited impression that the electronic media are capable of far behind. Through cooperation with the right specialists, printers are in a position to exploit this advantage and to offer their customers a high value product and so stand out from the market.

METALLIC IS GREAT. Through the combination of lamination (silver metallized or diffraction foil) or partial foil stamping before (UV) offset printing, hot foil stamping makes it possible to achieve the multi-colour appearance of a metallic object with a brilliance that no other form of finishing can match.

If one takes a transparent film and combines it with structural or relief stamping as the final production step, it is possible to create real, premium works of art. "Diffraction foils offering increasing light power (continuous holographic designs) are assuming a greater and greater role in such finishing and are overshadowing the classic gold and silver tones", comments Thomas Fischer, Managing Director of Deutsche Druckveredelung GmbH & Co. KG based in Süßen near Göppingen in Baden-Württemberg–one of Germany's best known names in the print finishing market.

TIGHTLY INTEGRATED. Demanding hot foil stamping jobs require close coordination between final customer, printer and print finisher. What's more, the capabilities of the equipment must be up to handling highly demanding finishing jobs and of doing so viably. To this end, Mr Fischer's company has six finishing machines from the Swiss manufacturer Gietz and three of these are from Gietz's largest class of machines, the Foil Commander for a workable sheet format of 1060 x 760 mm.

Deutscher Druckveredelung GmbH & Co. KG started operations in 1980 and the following systems from the Swiss manufacturer are now in daily use in Süßen: one Gietz FSA 870 EFF, sheet/sheet with hologram control, two Gietz ROFO 870 R-R I, reel/reel, one Gietz FSA 1060 Foil Commander sheet/sheet, one Gietz Foil Commander Smart Register System 1.0, sheet/sheet and one Gietz Foil Commander Smart Register System 2.0, sheet/sheet. In addition, there are Steuer and SPM rotary embossing machines (PZ 104 N, RF 90), 4 GTP 300s and three Bobst BMA 102s, two of which are running at CD Cartondruck in Obersulm, the majority shareholder in Deutsche Druckveredelung, in a shop-in-shop arrangement.

The hot foil stamping process requires very accurate register because almost nothing detracts from the impact and therefore the value of a foil finished product as much as imprecise stamping. Gietz has therefore come up with and now patented an intelligent solution that it has justifiably named 'Smart Register'. The system can also be retro-fitted to Foil Commander systems.

SMART REGISTER. This system compensates for cut and feed errors as well as sheet distortion by using defined, preprinted register marks or the front or side edges of sheets of board.

Feed precision can be adversely affected by poorly cut sheets resulting from upstream distortions during printing and finishing or web travel and sheeting faults during web printing. Smart Register is able to largely eliminate these. Production breaks caused by such faults should therefore be substantially reduced and the stamping of badly positioned sheets avoided, according to Dieter Seitz, Sales Director, of Gietz AG, which is based in Gossau near St Gallen in Switzerland. Smart Register is capable of handling materials ranging from 80 g/m2 up to 650 g/m2. It is necessary to observe a number of easy to follow requirements that help to ensure optimal, fault-free control. For example, coatings must be kept clear of the register marks and the colour of the preprinted register marks should, as far as is possible, be the same as that of the register colour. If, for example, a red can be picked out by eye as the register colour then this same red should also be used as the register mark colour.

As an alternative to printed register marks on the left and right edges of the sheet, it is also possible to keep within the tolerance limits by using a register mark placed in the centre of the fore edge of the sheet. Just a few mouse clicks during sheet planning are required in order to output such marks but they quickly contribute to markedly improved register quality and more reliable production.

HOW DOES SMART REGISTER WORK? The stream of sheets is conveyed from the feeder on to the feed table and during this process all three mark sensors are active. The sheets are held in a contact-free, pre-registration system and then, after being precisely aligned by three linear drives, they are transferred to the gripper system. The extent to which alignment corrections can be made depends upon the substrate but can be carried out at production speeds of up to 8,000 sheets/hour.

In the direction of sheet travel the maximum correction/alignment corridor is +/- 2.5 mm, whilst at right angles to the direction of travel it is +/- 2.0 mm.

↗ Continued on page 4

New effects through fascinating surfaces and functional ideas

INNOVATIVE PRINT FINISHING ■ Is classic print finishing played out? One might get that impression from a look at many of the applications running in the R&D labs of the large machinery manufacturers and smaller, know-how focused companies. This is not, however, the case, even though the advance of technology has not of course spared printing and packaging applications.

By Frank Lohmann
Editor, Printing and Finishing
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■ It is no secret that the packaging industry is growing. Smithers Pira, the market research agency, forecasts global growth in packaging sales from US $670 billion (c. €517 billion) in 2010 to US $820 billion (c. €630 billion) in 2016. This growth is being driven by rising demand for packaging in the developing and emerging economies as both standards of living and populations grow. In the Western industrialized world, on the other hand, the packaging industry is benefiting from increasing diversity and competition at the point of sale.

According to Smithers Pira, the world's largest packaging market in 2010 was the USA, where it was worth US $137 billion (c. €105 billion), followed by China with US $80 billion (€61 billion) market. By 2017, the market researchers forecast that China will have overhauled the USA. China Print, which took place in mid May in Beijing, provided a graphic illustration of how China's printing and packaging industry is developing (see page 9). India too is also developing as a major growth market and by 2017 it should be one of the 10 largest producers of packaging. The same report expects that over the next five years India's demand for packaging will grow to US €24 billion (c. €18 billion).

PAPER AND BOARD PACKAGING constitutes the largest segment of global demand for packaging, accounting for US $201 billion (c. €155 billion), and the experts from Smithers Pira expect that by 2016 this segment will grow to around US $250 billion (c. €193 billion).

Another survey by the market research company found that global folding box production has grown by around 2.5 per cent annually since 2005, reaching 43 million tonnes of board by 2010, and it is expected to grow further. Asia alone accounts for 45 per cent of this total volume, with the remaining 55 per cent being evenly divided between the USA and Europe.

Within Europe, the German folding box industry occupies the top spot, having around 25 per cent of the overall European market and producing some 860,000 tonnes, followed by Italy and the UK on around 14 per cent and then France on 12 per cent. Important product segments for the German folding box industry include confectionery, ready meals, frozen foods, tobacco, cosmetics and pharmaceuticals. Up-market, luxury cosmetics, confectionery and tobacco in particular require a constant stream of new concepts in order to stand out through their packaging from other competing products and goods at the point of sale.

What is true for packaging is increasingly also true for other segments of printing. There is a general trend in the industry and amongst print buyers to specify and produce increasingly high value printed products and brand owners, like machinery manufacturers, suppliers of materials and a variety of market research organizations, have all been working here for a number of years on innovative finishing concepts.

INNOVATIONS IN THE 'GALLERY'. Heidelberger Druckmaschinen AG is one printing system manufacturer that has been addressing the question of innovative surfaces for printed matter and related fields. Its research and development centre (FEZ) in Heidelberg itself is offering some visionary application concepts based on innovative printing processes and displays examples to show visitors where promising future developments are taking place in print.

For finishing and printed electronics there are market-ready products and demonstration projects showing what is already possible, whereas the focus in other fields such as printing on 3D objects, digital imaging and drying etc. is on technologies whose time will come.

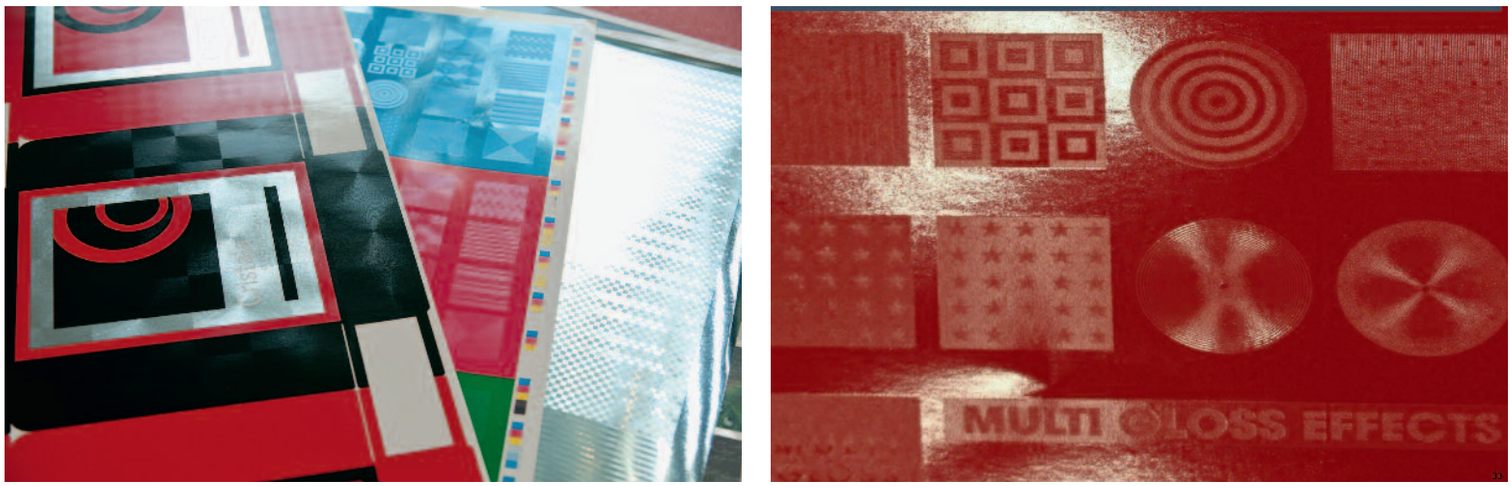
Frank Kropp

Frank Kropp is head of research and development at Heidelberg and comments, "At Drupa we focused on applications but for the future the FEZ's Innovation Gallery will emphasize other aspects and will document advances. Some of the things it presents will be really extraordinary in order to provide an idea of the full range of future developments.".

The Innovation Gallery at the FEZ demonstrates that printed communication is now very far from only being conveyed on paper. Heidelberg sees great potential here for brand owners, advertising agencies and print media companies and its aim is to enter into dialogue with these target groups in order to expand the traditional image of print and to provide a look into the laboratory. It should become clear from this that print has a future. "This is true for both classic and functional printing, as well the printing of decorative elements", comments Kropp.

NEW FINISHING EFFECTS can be achieved with fascinating surfaces. One application for increased differentiation in classic sheet-fed offset is, according to Heidelberg Druckmaschinen AG,

The classic folding box: this is still a key form of packaging with the potential to promote sales of premium products such as high quality confectionery, cosmetics or tobacco.



The Cristala project. The photographs show how existing drip-off equipment on offset presses can be used to produce new finishing effects. Specially prepared prepress data allows the creation of structured surfaces with highly accentuated gloss.

already ready for market. The Cristala creative concept on display in the 'fascinating surfaces' area of the FEZ's Innovation Gallery shows how new finishing effects can be achieved using existing drip-off equipment.

By specially preparing prepress data it is possible to create structured surfaces with a highly accentuated gloss that was previously impossible in sheet-fed offset. Structured coatings allow gloss to fluctuate with rocking and changes of direction and the Gallery also displays examples of areas featuring geometrical lines, textures, ornaments, continuous tone images or typographic patterns.

INTERACTIVE, LUMINOUS AND SMART. "Intelligent surfaces off the press"? Many applications in the field of functional printing are still lie in the future. However, one development that is ready for market is called Touchcode. This consists of a printed, intelligent surface that Heidelberg is showing off in the FEZ's Innovation Gallery in the form of an interactive printed ID card with integrated electronics. If such a Touchcode card is placed on an iPad, an app or the web browser will then provide access to specific content.

The card therefore acts as a copy-protected licence for electronic information such as restricted or closed applications and serves as a bridge to mobile end devices. Unlike with the conventional QR Code, there is no need to take a photo with the smartphone, all you have to do is to place the Touchcode—the paper key—on the display. In conjunction with Printechnologies GmbH of Chemnitz, Heidelberg has developed Touchcode applications for specific market segments and is demonstrating how these can be used.

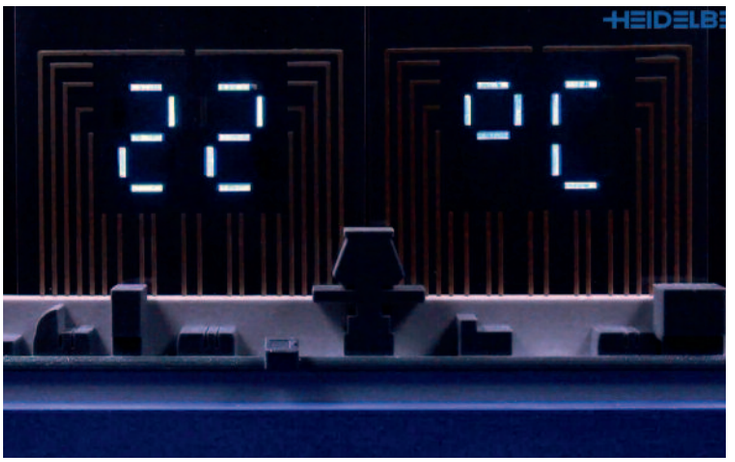
Printed, film-based luminous elements are another example of intelligent surfaces. In these the light effects are generated either by means of electroluminescence or printed OLEDs (organic light emitting diodes). They can take the form of areas or of information conveying details such as numbers, type or logos on folding boxes. Printed electronics will deliver the illuminated elements of the future in printed products. Heidelberg is currently working on expanded concepts employing decorative light over larger areas.

Smart Shelf is a new application that is intended to be the display shelf of the future. Here, both the folding box itself and the shelf's surface contain printed electronic components so that information about how full the shelf is or other details can be displayed. The technology can also be used for customer interactions in point of sale applications.

PRINTING IN 3D. When it comes to decorative printing on any surface there are now also applications for printing on surfaces that are not flat.

Multi-coating effects are a further print finishing variant, as shown here by the printing and finishing specialist Günter Thomas. They also highlight the latest holographic possibilities.

Electroluminescence. This Bombay Sapphire gin packaging created by Rox Asia and Karl Knauer GmbH lights up in three steps.



A printed, luminous element using OLEDs (organic light emitting diodes) is on display in the intelligent surfaces section.

In future, packaging with imprinted, active electronic components will interact with 'Smart Shelf' applications.

The transformation of highly productive, industrialized 2D printing into 3D printing is still in its infancy but first generation applications are now usable. These focus on the individualization and, possibly, the reversible decoration of everyday objects such as furniture, sports goods and toys, motor vehicles, capital goods, architectural elements or even entire building fronts. An entirely new category of 3D printing, but one that has nothing to do with the concepts described here, is one that has grown out of 'rapid prototyping'. Here, inkjet or laser 3D printers are used to produce three-dimensional objects. It is only a question of time and falling printer prices before this spreads to the end consumer market. There are possible uses aplenty.

The "drying and structuring surfaces" section of the Innovation Gallery presents new drying technologies and systems, including energy efficient UV LED dryer modules as well as a laser drying technology that only heats the ink but not the substrate. This offers process benefits. The crucial advantage is that the waiting time between printing and finishing is considerably reduced.

Heidelberg's Innovation Gallery is also showing a laser module concept that allows the partial drying or structuring of surfaces. As a multichannel digital module it will open the way to further digital imaging applications.

Thomas Fischer, Managing Director of Deutsche Druckveredelung GmbH & Co. KG (right) in front of his FSA 1060 Foil Commander, which is primarily used for high quality cosmetics and perfume packaging. Dieter Seitz, Sales Director of Gietz AG of Switzerland, is on the left.

↗ Continued from page 1

A digital DC1060 Die Coordinator from Insight Graphic Systems Ltd, which is sold by Gietz, handles the rapid and precisely positioned fitting of stamping dies for foil stamping.

DWELL TIME CAN BE A PLUS. The brand new Foil Commander (1060 x 760 mm sheet format), which was officially commissioned on 8th May at the Deutsche Druckveredelung plant (see the events page) features another key 'smart' function, reports Thomas Fischer. "This is the ability to set two dwell times at the top dead point of the stamping press, which means that we can stamp larger areas better." Not available on the previous version of the Foil Commander, it is the result of a reworking of the basic design of the machine's stamping section.

The impression mechanism can maintain pressure during dwell time and as a result there can be two dwell times. Dwell time 1 can be increased by 64% without halting or loss of speed, whilst dwell time 2 allows the machine to halt for up to 2.5 seconds under pressure. "What this means is that the platen can be held under pressure (350 t) for a short time by engaging and disengaging a special gear for each sheet", explains Seitz. This is also an important feature for the fine adjustment of stamping.

For Thomas Fischer, another important feature is the new Foil Commander's ability to handle stamping foils in lengths of up to 4,500 m, which is an advantage in terms of foil changing and overall productivity.

"Combined at will"

NEWSPAPER PREPRESS ■ At the beginning of 2013 Marks-3zet (Mülheim/Ruhr), the world's largest system house and dealer for waterless prepress and the necessary plates, acquired the 'Newspaper Prepress' division of Illies Graphik. Hans-Heinrich Benecke and Jochen Gläser also made the move and they talked to *Deutscher Drucker* about the new situation and the business model.

■ ***DD: Why is Marks-3zet taking on the newspaper prepress division from Illies?***
Hans-Heinrich Benecke: Marks-3zet has been involved in the newspaper world since the launch of the Cortina and for some time it has been thinking about supplying other products and services in the form of consumables and processors.
Jochen Gläser: It's clear this was right, since the move has been received very positively by our actual and potential customers.

The Mülheim company is a known quantity in the waterless sector.
Gläser: Yes, through the Toray plates that Marks-3zet sells. We are also known worldwide as a supplier of calibrated underlay sheets. Now, the waterless area has been expanded to offer complete prepress solutions, from workflow, through CtP systems, to fully processed plates. This was already the case for commercial, now it's true for newspapers too. We are receiving more and more enquiries from wet offset newspaper printers.

What has changed with the move from Illies to Marks-3zet?
Benecke: For our customers basically nothing has changed but what is different is that now one can think about business packages of machines and consumables.

What does the product portfolio look like?
Benecke: As a first step, a consultancy service is available for newspaper prepress. As a lead contractor we can then supply the entire range of equipment required for the specific concept. Last but not least, we will then handle the actual implementation right up to commissioning and on site production support.

How do you persuade people that Marks-3zet is the right lead contractor for prepress equipment?
Gläser: A newspaper printer thinks about prepress solutions once every five to ten years, depending upon the investment cycle. It's our bread and butter. We have the relevant experience and a detailed knowledge of what is currently available from the suppliers. Not only can we can offer customers off the peg solutions, we can also combines things to match customer requirements.

So, projects can be very different?
Benecke: Yes. At Illies we had already been involved in everything from relatively simple projects such as the new build of a printing plant in Sweden with two production lines up to multi-stage projects. In one German company the existing violet setter technology was replaced by thermal, and then central plate sor-

Jochen Gläser (l.) and Hans-Heinrich Benecke.

ting was added. All of this had to be carried out whilst production continued. In total, there were six phases to the project spread out over three years.

Aren't suppliers getting involved in equipment coming into competition with the manufacturers?

> **Newspaper prepress has become much more complex over recent years.**
>
> Hans-Heinrich Benecke, Marks-3zet

Gläser: Yes, in theory we could be going head to head with the manufacturers. However, we'll never win a project because we are the cheapest. In addition to the equipment costs there are also our consultancy costs. Consequently, we will always act as a lead contractor and offer the customer the added value of this service. Of course, the manufacturers from whom we source the equipment know to whom we're selling it. If I, as a final customer, were to put things together myself, I would be faced with lots of unknowns. The manufacturers of the individual pieces have little interest in whether or not the whole thing works. With us, on the other hand, there is only one sign off, when the whole project is up and running.

What are the main interface problems that can crop up?
Gläser: The first interface is to the publisher as the source of the data, whether it be planning or setting data. Then between production workflow and CtP system as well as the downstream units such as processors and punching/bending. In newspaper plants there is also the press planning layer. Last but not least, if production is highly automated then you need to integrate plate transport and changing.

Does Marks-3zet believe that the challenges in newspaper prepress will get bigger?
Benecke: Over recent years newspaper prepress has become much more complex. In addition, one also wants to produce as efficiently as possible. This whole area has assumed much greater importance within the production process. It is against such a background that the question of different planning states, centralized sorting, resupply etc. is assuming a higher profile. There are many questions that simply didn't have to be thought about even a couple of years ago.
On top of this there are also semi-commercial jobs for outside customers, which means that data from completely different sources needs to be processed.

Yes, but doesn't this primarily impact upstream of the setters?
Benecke: Yes, it's true that its main impact is on workflow but it can also have an impact on setting and further downstream if, for example, different formats are involved or if there is all round trimming. Then there is the question of web spread.

Is investment in prepress inevitably linked to investment in new presses?
Gläser: No, only when it's a question of an entirely new plant. Otherwise the cycles are much shorter than for presses. I might look at between 15 and 25 years for presses but for prepress between five and ten years.

Are there developments in prepress that are attractive enough to make people invest outside the planned cycle?
Gläser: There are currently major developments in software, including workflow. A lot is going on there and it makes sense to have a look round every couple of years. **Questions: Gerd Bergmann**

Fogra and SV Zeitungsdruck working together to increase energy efficiency

ENERGY ■ Cooperation between the Fogra Graphic Technology Research Association and Süddeutscher Verlag Zeitungsdruck GmbH should result in the energy efficiency of the latter's print centre being increased and future production becoming more sustainable. The first results of this cooperation are now coming through.

■ SV Zeitungsdruck GmbH, a member of the Süddeutsche Verlag group, has set itself the goal of constantly increasing the energy efficiency of its print centre and of producing more sustainably. The aim is to keep on driving down energy consumption and therefore not just costs but also CO2 emissions. These efforts are all the more demanding given that the production equipment is around ten years old and the building was completed in 1984.

PIECEMEAL MEASURES. Josef Schießl, Technical Director of SV Zeitungsdruck GmbH describes the situation in the following words, "If we had the opportunity to start afresh and to plan and build our production facilities on a greenfield site a lot of things would be very different from what we have here today. This is particularly true for the building's utilities. We are fortunate that for 1984 everything was specified to a very high standard and that the plans and supporting material still exist and can be referred to. However, since it is not possible to construct a new building or buy a complete new set of production equipment, we have to supplement, convert or cautiously replace what exists."

The key first step has been to analyse all the emissions, the production processes, the usage of materials, the building's utilities and all the interconnections. Weaknesses need to be made good and alternatives developed. Since there are often multi-layered, reciprocal interactions between different areas and implementation calls for the relevant specialist knowledge, problems need to be broken down into sub-projects and solved. Even a large newspaper printer such as the one owned by Süddeutsche Verlag is not able to cover every relevant area of expertise in sufficient depth and so outside advice needs to be brought in depending upon the problem in question.

COOPERATION. For this particular project the ideal partner for SV Zeitungsdruck GmbH was the Fogra Graphic Technology Research Association. One of Fogra's experts is Maximilian Ondrusch, a trained and TUV certified energy consultant, whose expertise is available through Fogra to help printing industry companies in their increasing need to use energy efficiently and to produce sustainably.

Dr Eduard Neufeld, the Institute Director and Managing Director of Fogra, comments, "Cooperation with the Süddeutsche Zeitung printing plant is an ideal project for us because SV's size and complexity means that a broad range of questions in the field of energy efficiency will need to be addressed. When it comes to working together it is not just a case of us offering our specific experience and expertise. It is also extremely interesting for us to see how this industrialized printer analyses the various requirements, prioritizes and implements them.

The project team made up of specialists from SV Zeitungsdruck GmbH and Fogra meets regularly to consider all the crucial phases of the project and its remit covers not just implementation but also the recording of the current situation. So, working with Fogra's expert, Maximilian Ondrusch, a number of electricity consuming machines have just been fitted with their own meters in order to record and analyse current consumption more precisely and then to be able to document the effect of whatever measures are implemented.

Günter Schaller, an SV Zeitingsdruck GmbH engineer, comments that, "Fogra's Maximilian Ondrusch has become very much a part of the team during all the internal inspections for the energy efficiency project. Fogra supports us with the documentation in particular, with the various statistical evaluations but also with its expert knowledge of how to exploit public aid programmes."

The Fogra energy efficiency expert, Maximilian Ondrusch (l.) and Werner Antretter, head of electronics/electricals at Süddeutscher Verlag Zeitungsdruck GmbH, standing in front of the new chiller.

SUCCESS THROUGH NEW MACHINES. The cooperation is now bearing its first fruits. An old chiller that was installed at the time the print centre was built has been swapped for a new one. By using a turbo chiller and integrating it into the building's cooling circuit this reinvestment alone has generated savings of €50,000 p.a. and should pay for itself in less than two years. However, it is not enough simply to replace an old refrigerating unit with the latest technology. It must fit into the cooling system as a whole. A flow circulation has been created using stubs and this was optimized by controlling it with a series of circulating pumps and valves.

The new turbo chiller has proven itself to such an extent that a second has now been acquired. Ultimately it is intended that three refrigerating units will replace an old system of four units, delivering roughly the same performance but with much lower energy requirements. The goal is an overall cut in energy consumption of 1,350,000 kWh per year. The switch will also bring service and maintenance savings.

XXL format sliding puzzle

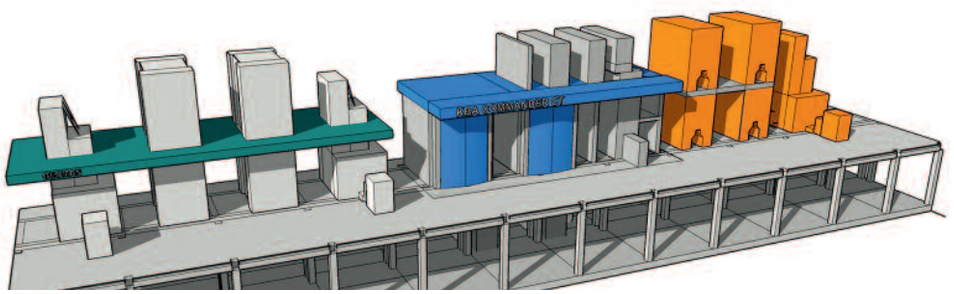
PRESS INSTALLATION ■ Old web press out, new one in. It sounds easy but it becomes more difficult when the necessary building work needs to be undertaken without enlarging the area of the building. The entire operation then becomes even more difficult if the plant has to operate normally throughout the process. These were the conditions that had to be met by the modernization project at Mayer & Söhne Druck- und Mediengruppe in Aichach.

■ The sheet-fed and web printer Mayer & Söhne is a coldest web offset service provider based in southern Germany. Besides the group's own Aichacher Zeitung and publications for subsidiary companies, its output is made up of newspapers, advertising sheets, magazines, advertising brochures, catalogues and other coldest products produced on contract for external customers.

NECESSARY DECISION. The recognition that one of the company's two newspaper presses, a KBA Journal A510, was no longer able to meet market requirements due to its limited 4/2 colour printing capabilities was the trigger for the company's decision to invest in a new press in order to strengthen its position as a supplier of coldest commercial print. This in turn led to the project to swap over presses without interrupting production. Accordingly, in the spring of 2010, the company started to plan its strategy for the development of its plant.

Thomas Sixta, Managing Director and the main shareholder in Mayer & Söhne, had already brought experts from the Mauser-Kaiser engineering practice of Aschheim near Munich into this process and in the course of various strategy meetings the following questions were extensively discussed. What operations and equipment needed to be adapted and what changed in order to better fulfil the requirements of its large number of customers and to unlock new market segments? How could the flexibility and customer services of the company, together with the quality of the products, be further improved? How could production and material flows be slimmed down and resource consumption and energy usage optimized.

Planning partners (from l. to r.): Marcus Jaskolla, Technical Director, Mayer & Söhne, Christian Kaiser, project leader and partner, Mauser-Kaiser engineering practice, Thomas and Reiner Sixta, Erwin Neudecker, joint Managing Directors of Mayer & Söhne, Jürgen Mauser, project leader and partner, Mauser-Kaiser.



The new newspaper press was installed in line between the MAN Roland Geoman (left) and the old press, which was removed in two stages (right).

A key conclusion and the answer to the above questions was that the Journal press dating from 1995 should be replaced by a modern coldest press capable of 4/4 colour throughout with the minimum possible rebuilding work. This then formed the remit for Mauser-Keiser, an engineering practice specializing in the graphics industry, which Mayer & Söhne appointed to coordinate and pilot the overall project as well as to monitor it.

> **The biggest challenge was that the available space meant that the new web press had to be installed in line between the Manroland Geoman and the Journal.**

PLANNED STEP BY STEP. "As a first step, we carried out a feasibility study in the spring of 2010 to determine whether and how our customer's desire to replace the press and rebuild the existing structure could be accomplished without disrupting ongoing production. For Mayer & Söhne this was especially important because in contract printing it is vital to keep to deadlines", recalls Jürgen Mauser, who continues, "The biggest challenge was that the available space meant that the new web press had to be installed in line between the Manroland Geoman and the Journal."

After a workable model had been developed the next important step was to select the press. The decision went in favour of a 32-page Berliner format KBA Commander CT with two printing towers, two reelstands and one folder. Its compact press units and the fact that it could be split into sections were features it was felt would help when it came to installation.

In the following concept (from July 2010) and detailed (from March 2011) planning phases, the rebuilding work and the adaptations to the existing building and utilities were worked out by local specialists. The work of all these various planners was overseen by the Maiser-Kaiser team, as were the suppliers and contractors selected by Mayer & Söhne. In addition, the engineering practice provided ongoing advice.

During the period of intensive detailed planning and coordination between the planning department of the press manufacturer, the contractors, the Mayer & Söhne project team and the engineers at Mauser-Kaiser, potential problems were identified at an early stage and worked around. By adopting a number of special solutions during the design and configuration of the press it has been possible to accommodate features of the existing building. The work included a great deal of preparation by Mauser-Kaiser and numerous planning sessions before work on the building started. As Jürgen Mauser recalls, "There were a large number of site visits,

↗ Continued on page 9

The first issue of the Aichacher Zeitung off the new press.

Preparing Slices for Optimal Slice Performance

PAPER REELS ■ Few events can spoil a web printer's day like a web break. The sections of web which are spliced together with adhesive tapes are especially vulnerable. In this article experts from the adhesive tape manufacturer 3M explain how web splicing problems can be minimized, and splice success rates maximized.

By Simon Gyarmati, Benjamin Korth, Ralf Klein-Uebbing and Robert Shaw
3M Deutschland GmbH

■ The splicing of paper webs is generally easier for newspaper printers than for commercial printers. Newsprint is not coated and so has open pores to which most pressure sensitive adhesives adhere well. For commercial printers — whether web offset or gravure — problems are caused not just by the coating (and the more closed surface) but also by the internal stresses imposed on the web by drying and remoistening.

GENERAL RECOMMENDATIONS. In order to minimize the frequency of splice failures the following points generally apply:

- Paper with a high transverse tear resistance (long fibres) and undamaged reel edges generally have a lower frequency of web breaks.
- In order to avoid creases and to ensure that the tape is applied in a straight line, prepare the splice by first applying a short section of tape to the paper reel and then firmly rubbing this down with a small plastic spatula. After this has been done, the remainder of the tape can be applied with the spatula. It is best to apply the tape with the spatula, exerting no tension, but rather allowing the tape to hang loosely. In this way, the tape is always applied in a straight line, without wrinkles or folds behind the splicing tape.
- Surplus tape should be smoothly trimmed off without damaging the paper reel.
- Minimize contact with any exposed adhesive surface of the tape.
- When removing the liner one should start not from the outer edge of the tape but proceed from the middle outwards, inserting a knife or other sharp instrument under the portion of liner to be removed at the score line. If one starts at the outer edge then the tape can inadvertently split.
- The liner should be removed slowly and steadily, without any jerking.
- The rolls of tape should be stored in their original packaging. If this is not practical then the rolls should be hung on a horizontal bar to avoid contact with dirty or contaminated surfaces. Optimum storage conditions are ca. 50% ambient humidity, normal room temperature and in a location preotected from direct sunlight.

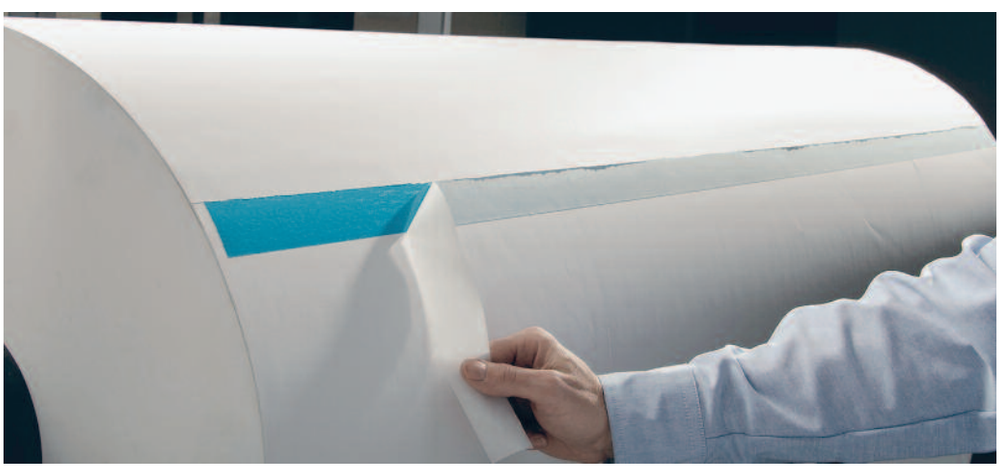
SPECIAL SITUATIONS. For both newspaper and commercial printers there are circumstances in which a specially configured type of adhesive tape should be selected in order to allow the presses to run at normal speeds.

COLD PAPER REELS. Many printers store their paper reels in warehouses which are not climate controlled. Sometimes paper reels are brought directly to the production area from the lorry. During the winter this means that the reels have a surface temperature that can be close to freezing when they reach the press. As a rule, most pressure sensitive adhesives are not suitable for application at temperatures of lower than 15 °C. Below 15°C, the adhesive becomes significantly more firm and less tacky. At 4 or 5 °C a flying splice can easily fail. In such a situation 3M's 9351 or 9353 splittable flying splice tapes are recommended because they have very soft adhesives and a high initial adhesive strength even when applied to colder surfaces. However, 3M recommends also for the 935X flying splice tapes that they be applied at temperatures of at least 15°C.

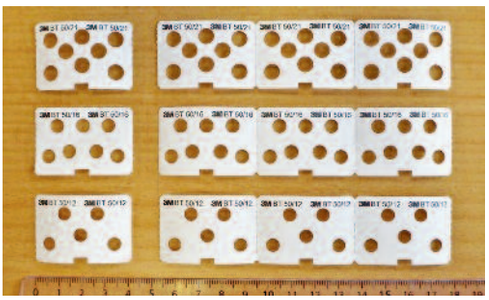
LOW AMBIENT HUMIDITY. If the ambient humidity is below 35% then this can result in a dry paper surface — to which many pressure sensitive adhesives do not adhere very well. Initial lab testing has shown 3M's 935X series of adhesive tapes to adhere well to colder surfaces.

BELT DRIVES. While many reel stands are generally core driven, there are a significant number of "belt drives" in use today. Belt driven reel stands make use of either one central belt or several belts to rotate the rolls of paper. Splicing patterns for belt drives using splittable tapes generally require "bridge tabs" in the pattern design. "Bridge tabs" are small paper labels with or without adhesive on one side with a series of holes to protect those sections of the tape passing beneath the belt from premature splitting, as the new paper reel is brought up to speed for splicing, while allowing the expiring web to adhere well enough to the splicing tape under the tab at the instant of splice.

BRIDGE TABS. Reliable splicing depends on more than just good tape. Poor bridge tab design and improper placement of bridge tabs can cause significantly poorer splicing performance in any splicing operation. 3M supplies three different bridge tabs with a specially designed hole pattern employing differing ratios of exposed and covered surface: the 3M BT 50/12 tab (for 50 mm wide tape, 12% open surface), the 3M BT 50/16 and the 3M BT 50/21. 3M BT 50/16 and 3M BT 50/21 tabs are recommended for gravure splicing or for splicing other coated papers. These two tabs, with their slightly larger hole area, expose more adhesive surface in order to increase the bond strength of the adhesive to coated paper expiring web at the instant of splice. The 50/12 variant is designed for splicing uncoated newsprint. On nearly all belt driven machines the bridge tab should be positioned so that there is a 2 to 3 mm wide line of adhesive between the



The protective liner should only be removed immediately before splicing.



Bridge tabs differ in their structure depending upon how much exposed adhesive area is required.

leading edge of the bridge tab and the leading edge of the adhesive tape. A 2-3 mm adhesive line is wide enough to ensure reliable splitting over the entire width of the tab whilst at the same time being narrow enough to prevent the belt from splitting the adhesive tape prematurely.

The tab should not extend by more than 10 mm on either side beyond the marked belt track. On presses with narrow (< 70 mm) wide belts, which generally exert a higher pressure, the high belt pressure, combined with the narrow belt width can result in the belt's lifting and splitting of the adhesive tape even when only a 2 to 3 mm wide section of the adhesive tape is exposed at the leading edge. In such cases, 3M's BT 50/12 tabs (smallest exposed area) should be tested, with no adhesive line between the leading edge of the bridge tab and the leading edge of the adhesive tape.

3M's 9351 or 9353 flying splice tapes, which require a low and uniform force for splitting, are recommended for belt-driven machines, for which the tape is designed to split at the moment of splicing with a minimal web tension increase. On the other hand, 3M's 9352 or 9355 flying splice tapes have been developed for core driven presses, for higher splicing speeds and for belt driven machines with a higher belt pressure than normal.

REEL PREPARATION. In many printers splice preparation is undertaken at a central location, resulting in some of the prepared reels being temporarily stored for hours or even days before splicing. This practice can increase the risk of a splicing fault.

The protective liner should therefore be left in place on the adhesive tape until shortly before splicing. Without this protective covering, enough dust can accumulate on the exposed adhesive within just a few hours to considerably reduce the initial adhesion of the tape to the expiring reel at the moment of splicing. In very dry or very humid storage areas the liner also serves to keep the moisture content of the adhesive at a more constant level.

The longer the prepared reels are temporarily stored the more likely it is that the conditions to which the adhesive is exposed could alter its properties. Very often, the reels are placed directly on the floor.

The high pressure on the section of reel in contact with the floor can leave an impression on the reel, leading to 'bouncing' of the splicing pressure roller on the reel at the moment of splicing. Any dust or dirt on the floor which adheres to the paper can cause splice failures as well. Storage of "splice ready" paper rolls for long periods can result in changes in the moisture content of the reel, leading to creases or tensions in the region of the applied adhesive tape.

PAPER AND TAPE FAULTS. Papers that exhibit a low transverse tear resistance need special handling. For such papers it is best to apply double sided adhesive tapes such as 3M's 913 (newsprint) or 3M 906 (commercial print) in a 'V' or 'W' pattern. If a belt-driven machine is being used then gaps should be left in the pattern so that the belts do not come into contact with the adhesive tape. Any adhesive tape in the vicinity of the belt can lead to additional tension during the splicing.

The most difficult situation is when a low tear resistance paper is being spliced on a belt-driven machine with splittable flying splice tapes. 3M 9351 or 9353 flying splice tapes, which have a low splittingforce, are recommended in such instances. In the case of uneven reel surfaces it is again best to apply double-sided adhesive tape in a 'V' or 'W' pattern.

The somewhat thicker 3M 9359 flying splice tape offers a better chance of adhering to the hollows in the uneven surface of the expiring reel. When reels that are not perfectly round ("out-of-round") need to be spliced they should be allowed to rotate freely until they come to a halt of their own accord. This leaves the highest (and heaviest) part of the reel closest to the floor. This portion of the reel should then be marked, and then rotated a quarter revolution backwards and the splice prepared at this marked 'highest' point. This ensures that the greatest possible pressure is generated on the splicing tape at the instant of splicing.

THE CAUSES OF FAILURE. Even if all the above points have been adhered too, splices can and will fail. In order to discover the cause one should:

- Note the time of the splice failure. Was it before, during or after the actual splicing?
- Preserve fragments of the splice and adhesive tapes for the tape supplier to inspect.
- Did the affected tape originate from a box that had already been opened?
- Do faults only arise at certain times of the day or certain days of the week?
- Had the machine settings been changed beforehand or had maintenance work just been completed?
- Do the splicing faults only occur when certain paper grades are being spliced?

↦ For further information e-mail: druck.de@mmm.com

↗ Continued from page 7

and many photographs and measurements were taken. It transpired, for example, that the old plans no longer fully reflected reality and so we were able to adjust all the planning before starting on actual building work."

STEP BY STEP IMPLEMENTATION. The project moved up a gear when rebuilding work began in August 2011 and preparations were made for the 'open heart surgery' of installation whilst daily print production continued. Installation of the steel base frame for the press followed the partial removal of the KBA Journal in October 2011 and things were now ready for the first KBA Commander CT printing tower and the folder. This unit began production in April 2012. At which point nothing stood in the way of complete removal of the old press and the installation of the second Commander CT tower. Both of these were

After the building of the steel base frame everything was ready in 2012 for the installation of the new press.

accomplished in May 2012. In September 2012 there were therefore two causes for celebration in Aichach: the one hundred and fiftieth anniversary of the foundation of Mayer & Söhne and the official commissioning of the new newspaper and semi-commercial press, which had been installed under far from normal conditions. "Right from the start of our strategic planning, Mauser-Kaiser was able to draw on its extensive experience in order to make valuable contributions for the future development of the site", comments Thomas Sixta. "The experts from Mauser-Kaiser kept a tight rein on everything during the rebuild and press replacement project without shutting out our own team. This is how professional cooperation should be."

And that is not the end of the cooperation. In the course of this year the mailroom equipment at Aichach is being replaced and in 2014 the other press will undergo a retro-fit. There will also be a project to optimize work and materials flow. Suppliers are currently being chosen—again with the aid of Mauser-Kaiser.

Bar code scanning replaces searching

AUTOMATION ■ It's not always the mega solution that yields substantial results. Often it is the little things that take a company forward. The Internet printer Onlineprinters GmbH of Neustadt/Aisch in Franconia has recently turned to a simple bar code scanner fitted to a cutter to achieve time savings, believe it or not, of around 90 per cent.

By Martina Reinhardt
Editor, Post Press
Deutscher Drucker

■ The numbers reported by Onlineprinters GmbH are impressive: 40,000 square metres of production space, 370 employees, around 85 printing units and turnover growth in the region of 30 per cent per annum.

Onlineprinters' Managing Director Walter Meyer.

SELLING VIA GOOGLE. The company has more than 200,000 customers drawn from all over Europe and, as the name suggests, these come via the Internet and in many cases via Google & Co. Based in Neustadt an der Aisch in Franconia, Onlineprinters GmbH is Germany's second largest Internet printer and handles all the job processing, including estimating and payment, over the web.

The customer chooses the desired product, paper, print run, finishing and any additional services via the web and then uploads the data. The spectrum ranges from tip-ons to voting slips, from brochures to business cards. Three or four days later the product in question is delivered.

"For the customer it is simple and, above all, transparent", explains Managing Director Walter Meyer—and this is undoubtedly one of the reasons for the companies rapid growth over the last eight years. In Germany the company continues to be known by the diedruckerei.de brand name launched in 2004.

However, as international demand grew Meyer founded Onlineprinters GmbH, which is easier to understand outside Germany, in 2008, and the diedruckerei.de brand now also comes under the umbrella of the latter company.

Currently, Onlineprinters sells printed products in over 30 European countries and in eleven countries it has online shops running in the local language or, in some cases, languages. Each has the appropriate country suffix, and they include Belgium, Luxembourg and, since March of this year, Ireland. Its international expansion has paid off and the company now generates almost half of its business from foreign sales. Most customers are from the business segment and they number such big names as McDonald's, NKD and 1. FC Nürnberg. They also include printers.

HEAVY METAL AND IT. The only viable way of handling the number and variety of jobs is through highly automated, industrialized production. On the one hand, the machinery park, where there is scarcely a single machine that is older than four years, helps to ensure a smooth workflow. "We need this high productivity in order be able to process every job rapidly", explains Meyer. However, one has to ensure that increases in productivity move forward at the same pace. "It's no use if your presses run at 18,000 if pre- and postpress are unable to keep up."

Machines, however, are just one side of the coin. At the end of the day, any other printer could invest in modern machinery. What is crucial for Walter Meyer is the logistical know-how that Onlineprinters has built up over the years. "Without IT-based workflows we would not be able to handle this quantity of jobs and we wouldn't have been able to cope with the growth of recent years", comments Works Manager Bernd Schürmann.

The company uses software developed in house that is precisely tailored to its requirements.

Cutter operator Michael Koller shows how the cutting programs are called up. The bar code scanner is located to the left on the cutter.

A printing forme usually contains several individual jobs and the cutting programs offered by Compucut 5 software are correspondingly varied and complex.

All the machines are monitored by the software and jobs are assigned to them centrally by the plant management. 80 per cent of printing forme imposition is automatic, and the platesetting and supply of plates to the presses is controlled by the software. A bar code that is generated and printed at the prepress stage replaces the job ticket.

CUTTING. This bar code now plays a key role in cutting. Between 500 and 800 formes are ganged up at Onlineprinters every day and since the company runs a three shift operation and has seven cutters this means that each cutter has to handle between 20 and 30 formes per shift, according to Bernd Schürmann's figures. That's quite a pile.

Most of the formes are ganged up, which means that several jobs are run on a single forme and the individual jobs then need to be separated. This is the task of the cutter operators. Accordingly, the system holds a number of cutting programs that are more demanding than the usual four-sided trim and final dividing cut. As with a label printer, cutting at Onlineprinters is a key stage in the process. The Autotrim 137 cutters are all from the Hofheim cutter manufacturer Polar and all are linked to prepress by Compucut 5 software. Two employees are responsible for ensuring that the right cutting programs are generated from the digital sheet data and these programs are then held centrally by an external cutting program manager (ESPV). Any of the cutters can then access the manager to download the required cutting program.

This central management is an enormous benefit for the printer, since it allows the flexible assignment of jobs to any cutter. "In the development of Compucut 5.0 we have paid particular attention to the simple generation of cutting programmes for complex ganged-up formes, as well as a WYSIWYG display", explains Polar's product manager Matthias Langer; and it is the latter feature in particular that provides the operator with a better overview of the jobs ganged up on the forme.

However, for Onlineprinters the sheer quantity of different cutting programs meant that initially the cutter operators were taking quite a bit of time simply hunting for the right program. "It could easily take one and a half minutes per forme", reports Schürmann, and with 30 formes per cutter and shift that adds up to quite a total.

SCANNING. The company worked with Polar to speed things up and the solution turned out to be close at hand or, rather, on the printed sheet itself in the form of the bar codes these sheets carried. In the first instance, a bar code reader was fitted to one cutter and field trials car

The operator simply scans the code and the right cutting program is located in the cutting program manager and immediately downloaded. This really is saving us between 80 and 90 per cent of the time simply by eliminating the search for the right program", reports Schürmann. "And for us that's a great result."

The Works Manager is also pleased with how the idea was implemented. It took just four to six weeks to move from initial discussions with Polar to field trials and so far as installation goes it essentially boils down to connecting the scanner to the central program manager and the cutter. According to Schürmann, this worked right away. However, given the job spectrum, neither Bernd Schürmann nor Walter Meyer believe that further automation of the cutting would make sense. "Not all the materials that we run can be automatically cut or jogged", explains Meyer. He fears that excessive automation would lead to loss of flexibility.

"The variety of jobs is too great. And so it doesn't make economic sense for us, at least at present.". The above example shows how a comparatively small but highly effective solution using a bar code scanner has had a major impact by eliminating almost half an hour of searching per machine and shift. Given that there are seven cutters, it has the potential to save almost three and a half man-hours. No wonder that the bar code scanner is now being retrofitted to the other cutters.

Grey value as visual DNA

LEIPZIG TYPE DAY 2013 ■ With its theme of 'Type in the 21st Century' the Day drew participants from all over Germany, including large numbers of students, to the Museum für Druckkunst. Alongside the conference there was a two-part show. Part one offered an overview of international typeface designs whilst part two adopted the slogan of 'Local' and shone the spotlight on examples from Halle an der Saale, Leipzig and Weimar.

By Silvia Werfel

■ To start with the final talk, "A life between", which took the attendees on a particularly long journey. The designer Roman Wilhelm is at home in two worlds, China and Germany and, as a specialist in multilingual typography, two writing systems. Type design? Typography? These are terms that do not exist in Chinese, having originated in the European universe of Gutenberg and the Latin alphabet. China, however, is the custodian of a three thousand year old written culture. To read a book or newspaper one needs to understand around 4,000 ideograms and educated people will know up to 8,000, out of a total of more than 70,000. Designing fonts is therefore a major project and it is very important to lay down the basic principles. What do you do if the design concept turns out to be unworkable when the five thousandth character is reached?

Naturally, lettering is very important in Chinese graphic design. It is words and individual strokes that are designed rather than complete character sets. There are, however, a few Chinese type designers and Roman Wilhelm introduced some of them. Sammy Or is based in Hong Kong and has over 30 years of experience in font technology and design. As one of the few full time professionals he has designed fonts for Monotype China (Li hei, Li Sung) and he also researches and teaches. Ying Yonghui from Shanghai is more an illustrator and graphic designer. In his type designs he is inspired by the calligraphers and the traditional handwritten forms. Zheng Chuyang of Berlin and Beijing is, on the other hand, draws his inspiration from old seals.

Roman Wilhelm is at home with the Latin alphabet and Chinese ideograms. He is currently creating his first Chinese face, Laowai Sung. 24,000 characters are ready... Sung New Roman is one member of the family.

"The fabric becomes a piece of type and the text a woven item". David Fichtmüller uses fabric as a typographic grid and plays with colours and forms. His aim is to make others aware of the essence of the material.

Roman Wilhelm is also working on his own typeface. He is delighted that, "China lets me be a calligrapher". His Laowai Sung (Laowai means Mr Outside) is a, "type that is full of aesthetic mistakes, full of imperfections", as he himself admits. "And yet (perhaps because) in some sort of distant way it is also a calligraphic type." 24,000 characters are ready, there are some 3,000 still to go…

TEXTILE TYPOGRAPHY. David Fichtmüller's talk was hardly less exotic. His field is textile typography and he designs and produces fabrics for religious spaces such as altar and pulpit hangings, as well doing other work. He studied communication design and textile art at Burg Giebichenstein and he has even sat at a loom. He loves working by hand. "I like it laborious, slow—full of value." David Fichtmüller uses the fabric as a typographic grid on which he plays with forms, patterns and yarn colours in the foreground and the background. His goal is to makes others aware of the essence of the material. In Leipzig he succeeded.

EVOLUTION NOT REVOLUTION. A type designer such as Henning Skibbe deals in the almost invisible when commissioned to refresh the appearance of a daily newspaper and help strengthen its brand. Evolution not revolution is the name of the game. Essentially his work involves analysing and understanding an object such as a newspaper, which is highly complex and involves structure, hierarchy and reader comfort. Henning Skibbe talked about his work for the Süddeutsche Zeitung.

Originally set in Excelsior, the initial discussions centred on moving to Miller. However, when it was tried the pages appeared a little dark. This did, however, demonstrate how grey value is a newspaper's visual DNA. He ended up creating the SZ type family, which consists of around 40 cuts tailored to meet every requirement of the newspaper, including a slightly narrower, up to date and lighter display version of SZ serif for the arts section. This entailed a lot of detailed work, especially as everything had to work on every platform: printed, Internet and the app.

GUT FEELING. Friedrich Forssman spoke amusingly about, "25 years of using type", and lifted the

lid on some of the things he had been involved in. He is a classic book typographer and, as he made clear at the outset, he would never dream of designing a typeface himself. Rather, he enjoyed exploring the wealth of typefaces and discovering in Kris Sowersby's Newzald the perfect face for a New Zealand crime novel from Weidle or Typejockey's Ingeborg as just the font family for the Andere library. His choices convey local colour or reflect the spirit of the age. Sometimes, however, they were simply pragmatic, as was the case with the Reclams universal library. He always designs from the inside out. "I can't do it any other way". Fonts that he would certainly never work with include Bodoni, "a right diva", Helvetica and Futura. How does he make his typeface decisions? As a passionate opponent of design theory, he explained that for him design was always a matter of gut feeling. Ultimately it's because, "It looks better."

Stephan Müller runs the type design course at the Graphics and Art of the Book College together with Fred Smeijers. His talk was entitled, "The perfect serif `', but, in reality, he is not the least bit interested in this. He comes from a graphic and system design background and, unlike Friedrich Forssman, what he is looking for is a merging of type design and application, rather than almost neutral statement faces. A basic training in the historical craft, as offered by his colleague Smeijers, is essential as a start but ultimately it is a case of applying the technology intelligently and getting to grips with software and programming.

After some basic thoughts on training, he offered his former students Peter Mohr and Pierre Pané-Farré the opportunity to present their degree projects. Both had focused on theoretical and practical historical themes. Peter Mohr undertook research into classicistic typefaces but applied the more precise term of 'high contrast forms' to them, and discovered how copperplate engraving had influenced type design for letterpress. His Fayon and Fayon Grande, published by Our Type, formed the practical part of his degree project. Pierre Pané-Farré uncovered a historical process for full colour printing by looking at the early nineteenth century cover pages at Congreve-Druck. The practical result of this was a relief forme composed of multiple individual parts and a poster (both graduates will report on their projects in forthcoming issues of the Journal of Print History).

Print history in theory and practice: Pierre Pané-Farré did his degree project on the historic Congreve-Druck. The illustration is of a detail from the poster.

PIXEL TAMER. Print and typeface history is also a source of inspiration for Maurice Göldner. In "Typeloops", he spoke about the question of speed and of finding the drive, tools and techniques for faster production, whether for Gutenberg or in today's digital age. He also designs typefaces. A couple of unique details from the Wellington metal font inspired him to come up with his Stan face, which has now become an entire family. Others dream of a face that comes directly from the computer. And they don't just dream…

Christoph Knoth has researched into this, and he vividly explained the development since 1945 and addressed the question of how far pixel, curve and parameter based font editors are able to establish a, "new, style-moulding aesthetic". He has also developed a program for parametric typeface design. Regulators are used to determine curve, openness, angle of inclination and width. For the time being playing around with aesthetic requirements is not (yet) enough, added Christoph Knoth.

The appealing Type Nerd and Pixel Tamer, Tim Ahrens, argued that type in the twenty first century is type on the screen. The introduction of web fonts arrived like a big bang. More differentiation, new freedom—offering the web designer a greater variety of fonts to match what had long been available for printed products. It is not, however, enough to simply change the font on a web site. Attention needs to be paid to the microtypography and flexible structuring to suit screen size. The key message is to do the most difficult thing first, i.e. "Mobile first". The key terms are responsive web fonts, responsive web design. Web sites designed by Ralf Herrmann provided examples of how this should be done.

SUMMARY. A full house, ten speakers in good form, a welcoming host and, in Olivier Linke, a sympathetic and informed moderator: the 19th Leipzig Type Days (actually only one type day) were a great success.

IMPRINT

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Efficient embossing with new calendering sleeve change technology

PACKAGING PRODUCTION ■ Inline and in-register embossing of packaging is complicated and expensive. The dies required for it have long delivery time scales and can only be adjusted by experts. Or so many packaging printers believe. However, it ain't necessarily so. A new kind of interchangeable calendering sleeve opens up the possibility of simpler and cheaper rotary embossing.

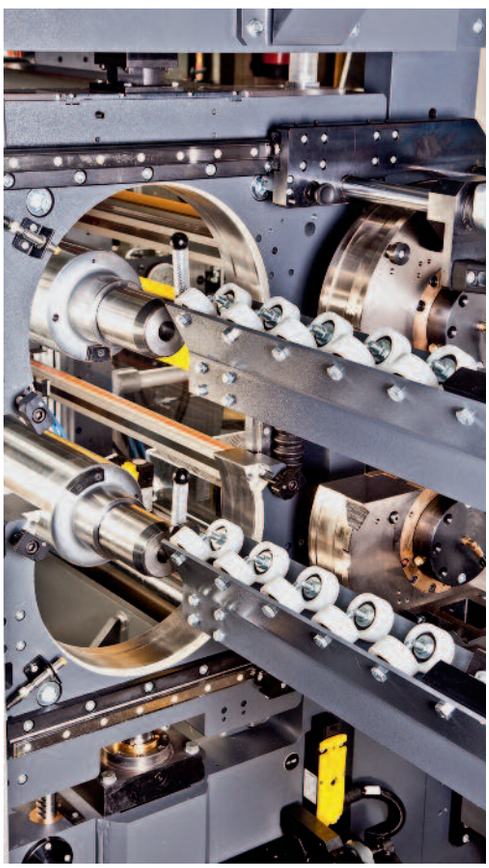
■ High quality products require high quality packaging. As an old marketing adage goes, "Customers don't buy products, they buy packaging." Not everyone shares this opinion. In the case of perfume it is of course the scent that matters first and then perhaps the packaging. However, if one examines one's own buying habits, it will become clear that for comparably priced products there is a tendency to opt for the high quality packaging.

Over recent years there has been a move to more and more demanding printing in the packaging industry and a combination of premium printing and modern inline embossing technology allows products that are already on the market to be significantly enhanced or to take on entirely new lives through the creation of new packaging.

ROTARY INLINE EMBOSSING. In-register, rotary inline embossing is regarded today by many printers as complicated and expensive and for small batches flatbed embossing is currently the preferred option. The drawbacks of rotary inline embossing have been unchanged for many years: the dies—embossing rollers with precision gear wheels—are relatively expensive and have long delivery time scales. Long change-over times lead to poor press utilization and well trained staff are required to adjust the embossing dies on the press. On top of this, not every press manufacturer offers rotary embossing as a regular part of its portfolio.

Saueressig GmbH + Co. KG, which is based in Vreden, has developed a generation of embossing machines which the manufacturer claims combines the advantages of rotary embossing with those of direct drive and sleeve technology; and, in doing so, it has drawn on the experience of its customers in the packaging industry.

The conic Saueressig sleeve system for printing and embossing applications essentially consists of an expanding central core with a tapering face to which a hard chrome layer is applied and then precisely ground and polished. The printing or embossing sleeves are then slid on to this finished central core, which expands to clamp them firmly in place. The central cores are either permanently mounted in the newly designed embossing system or, as an option, can be swapped by means of a quick-change system. Saueressig claims that it is possible to change sleeves or central cores very simply and quickly in a machine fitted with such a quick-change device.



The photograph shows an SWK calendering sleeve change system with open bearing housings in readiness for a sleeve change.

THE NEW GENERATION OF MACHINES boasts a number of other features and it is fitted with the latest drive technology. In conventional embossing systems employing die/counter die embossing, which has been used for years for producing products such as cigarette packs, it is necessary to manufacture a set of gear wheels tailored to the circumference of the roller in question in order to ensure the embossing rollers are synchronized.

Such gear wheel sets feature a release and can be adjusted radially in relation to each other; all of which means that delivery time scales are long and can be anything up to six weeks.

AN ALTERNATIVE is provided by the calendering sleeve change (SWK) system. In this, each central core and sleeve combination is driven by a servomotor. The synchronization of the cylinders is monitored electronically and the radial position of the sleeves in relation to each other can be adjusted and so optimized whilst the machine is running. A special diameter independent gear mechanically restricts the adjustment path so that even in the event of incorrect operation or motor failure Saueressig claims that it is still not possible to damage the embossing surface. Direct drive technology also opens up a number of other possibilities.

ADJUSTING THE EMBOSSING ROLLERS in conventional embossing systems requires well-trained technicians who have the necessary fingertip feeling. Such employees are not always available in a multi-shift operation and so when changes are made at short notice to a production schedule it may transpire that a job cannot be run because nobody is available to precisely adjust the embossing register.

To overcome this, the Saueressig embossing system is equipped with a laser presetting system. Once the sleeves have been swapped the machine is switched to reference mode and the measurement system locates a reference mark applied to the surface in register with the design on the sleeve. The machine's controls then automatically adjust the radial and axial position of the sleeves arranged one above the other so that the die and counter die are in register at the start of production. Final adjustments can then be carried out during production in response to web tension and production speed.

INTEGRATION INTO THE PRINTING SYSTEM. The manufacturer claims that the integration of such a calendering sleeve change system into an existing press is relatively simple. It requires around 1.50 m of space along the line of the press and standard face lengths of 680 mm, 840 mm, 1050 mm and 1,300 mm are available. According to the manufacturer, it is capable of production speeds in excess of 400 m/min but this does depend upon the material. Saueressig also offers easy to handle storage and transport devices.

The SWK system offers cost savings through shortened change-over times, the elimination of unnecessary wastage and lower die costs.

Press breakdown– covered by insurer or guarantee?

AN EXPERT REPORTS FROM THE COAL FACE ■ The first ink forme roller was damaged on a printing unit of a sheet-fed offset press that was still under guarantee. As a result of making good this damage a loose press part passed through the direct area of contact between the blanket and impression cylinders and caused substantial damage to the unit.

■ The remit here was to determine the cause of the damage so as to decide whether it should be covered by the press insurance or by the manufacturer's guarantee.

SITE VISIT. The press was closely inspected during the site visit. According to the accounts of the printers it appeared that the front side of the rubber coating of the first ink forme roller had been damaged on the operator side. The ink forme roller was removed and a ring that was about 10 mm wide was cut away from the damaged front face. This part of the damaged rubber roller coating was not retained as evidence.

When removing rollers identical roller locks are opened on either side. In order to do so the cylinder locks need to be released by loosening an M8 x 60 cylinder screw and safety pin on both sides.

According to the statement of the printer working on the operator side the cylinder screw was missing after the removal of the roller. The printer was unable to say where the safety pin was. On reinstallation, the roller lock on the operator side was not secured.

A specific search for the loose securing elements was not made before resuming operation.

Figure 1: The impression of the screw on the impression cylinder surface is clearly visible.

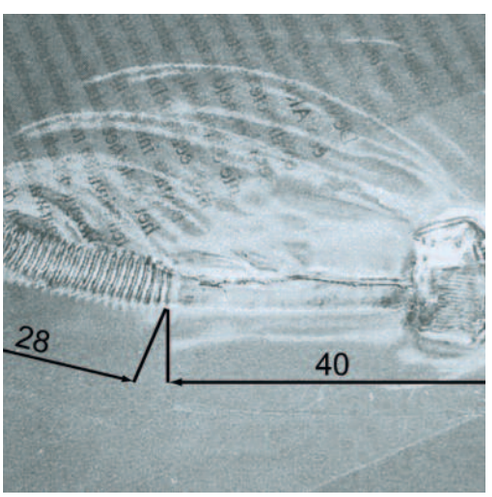


Figure 3 is an enlarged view of the bent cylinder screw

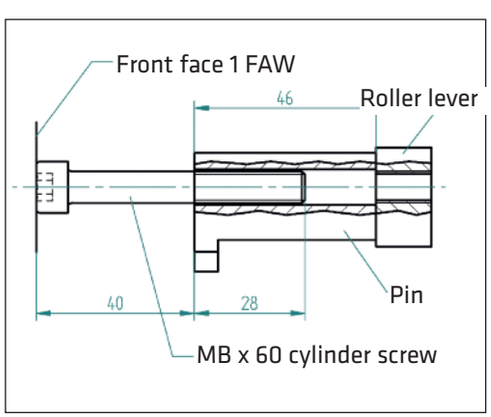


Figure 2: Dimensioned technical drawing of the cylinder screw and pin

TIME POINT. Two days after the roller change, the cylinder key suddenly and unexpectedly became trapped at the direct point of contact and did substantial damage to the impression cylinder surface at a point 120 mm from the bearer ring on the operator side (see figure 1).

The concentricity measured at the bearer rings was 0.04 mm on the operator side and 0.00 mm on the drive side. The blanket cylinder surface was not so badly damaged and no concentricity differences arose. After an intensive search for a foreign body, the safety pin was found on the blanket cylinder shank on the operator side. On inspecting the central hole running through the safety pin into which the cylinder screw is inserted it was possible to see a threaded impression on one side. The cylinder screw was bent 40 mm from the head.

DD-SERIES

PROBLEMS FROM GRAPHIC COMPANIES

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DAMAGE SEQUENCE. The cylinder screw became loose and 40 mm of the screw head came into contact with the front face of the ink forme roller, which resulted in the damage to the roller covering. As a result of the transverse forces between the screw head and the rotating forme roller the screw was bent.

This bending meant that the thread in the central hole running through the safety block was marked on one side. Screw and pin could only fall into the printing unit once the ink forme roller was removed.

Since neither the safety pin nor the cylinder screw were re-fitted on the operator side when the ink forme roller was reinstalled, the damage was caused by the loose cylinder screw in the printing unit. The reason for the loose cylinder screw could not be unambiguously determined.

SUMMARY. It became clear that it was not possible to unambiguously assign responsibility for the damage and for this reason it was recommended that the damage to the ink forme roller be covered by the press manufacturer.

The damage to the cylinder resulted from negligence by the printer, because the press had been returned to operation even though there were loose parts in it.

Edited by Frank Lohmann

Print is… record breaking

XXL PRINTED PRODUCTS ■ Fespa provided a show case to demonstrate that print does things in a big way. Large format technologies and applications filled two massive halls at the London exhibition centre; but it's not just when it comes to banners and posters that size matters in print. Printed products in other categories have hit the big time.

Bild, the popular newspaper, holds the record in the Guinness Book of Records for the largest issue of a daily newspaper in terms of format. The unfolded newspaper was the size of about eight A4 pages (photo source: Guinness Book of Records).

By Martina Reinhardt
Editor, Post Press
Deutscher Drucker

■ Ikea's Billy bookshelf definitely wouldn't be up to it. The largest book in the world to have been sold commercially measured 2.13 x 1.52 m and weighed around 65 kilograms. It was an illustrated book about Bhutan entitled, "Bhutan: A Visual Odyssey Across the Last Himalayan Mountain Kingdom", which was published in 2003. It was produced in a limited edition of 500 copies and could be ordered for the bargain price of US $15,000 from Amazon.

Only a cut down version of the book is still available from the online bookseller but even this measures 44 x 31 cm and can be had, would you believe it, for US $2,266.

The current world record holder for the world's largest book is not for sale at present. This is an illustrated volume from the Japanese car manufacturer Mazda, which dates from 2004 and measures 3.07 x 3.42 m. Clearly, the goal is to portray Mazda's new compact car life size. The book runs to just 16 pages but it weighs 352 kilograms.

"The Thickest Book in the Universe" is exceptional not for its format but its page number. Running to 50,560 pages, the book is 4.08 metres thick. This particular tome made its debut at the Frankfurt Book Fair in 2010 and was published by Zeitgeist Media (Düsseldorf) and produced by GGP Media. The books target group also contributed the content, which consists of texts and drawings submitted by children for a competition run by the German Ministry of Transport, Building and Urban Development. These were then published as Captain Blue Bear's Traffic Primer.

Delighted with the Guinness certificate. Permanent Secretary Andreas Scheuer (German Transport Ministry) together with the comic figure Captain Blue Bear in front of the 'Thickest Book in the Universe' at the Frankfurt Book Fair 2010 (source: Zeitgeist Media).

THE BIG LOTTERY. It's not just books that can assume record-breaking dimensions. The Bremen printer Innup made it into the Guinness Book of Records in 2011 with a 60 m2 scratch card (see DD 27/2011, p. 12) consisting of a total of 10,374 scratch panels arranged on the 1.63 m high and 38 m long lottery banner. The printed product weighed about 60 kilograms and raised some €20,000 for the Bremen Biennale—a great success all round.

BIG TIME BILD. Bild-Zeitung also secured its place in the Guinness Book of Records by publishing the biggest Bild of all time on 27th August 2011. Opened out, that day's issue of the popular newspaper measured 80 x 57.5 cm—roughly the equivalent of eight A4 pages. Bild is usually published in Northern format but with this XXL issue of Bild Berlin's Axel Springer published the largest edition of a daily newspaper in terms of format.

Bild achieved its second entry in the Guinness Book of records just a year later on 23rd June 2012. To mark the 60th anniversary of the newspaper the publisher delivered a free copy of Bild to every household in Germany that hadn't opted out. The print run ran to 41 million, making Bild the highest circulation daily newspaper in the world.