PrintPromotion

NEWSLETTER

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drupa 2020 – "embrace the future"

drupa 2020 will again provide crucial impulses for print, media, packaging production and industrial applications – especially in the vertical markets as well. The world's leading trade fair for printing technologies offers outstanding networking opportunities and potential for excellent business dealings. This is where innovations are brought into the market, new business models are developed and new partnerships are formed.

The highlight topics of drupa 2020 will be:

- → **Print** – with exhibitors showing the fascination of technical possibilities
- → **Packaging production** – key trends and outstanding innovations as well as new products will set benchmarks for processes and applications
- → **Functional printing** – covering innovative printing processes for many applications and solutions from different vertical markets
- → **3D printing** – again the touchpoint 3Dfab+print will be offered with internationally top-class speakers and future-oriented presentations
- → **Industrial printing** – comprising automation, robotics, new workflows in the production process as well as the next generation of Industry 4.0.

Furthermore, future technologies will be in the focus, and there will be a special start-up area.

Print specialist teachers from 15 different countries deepen their knowledge

In their home countries, they work in universities and education centres, training students for careers in print and media. Yet for four weeks, the 15 experts who took part in the PrintPromotion specialist teacher training course were students themselves. At the AZP training centre for print and media in Chemnitz, they were learning the ins and outs of modern print processes so that in future they will be able to pass on the knowledge they learn here to their students, trainees and colleagues.

First, the AZP team presented an overview of a quality-assured, largely standardised print workflow to the participants before beginning to explain to them each individual step from incoming data through to the finished print product. Theory and practice go hand in hand so prepress specialists can understand printing technology and vice versa.

The fact that specialist teachers share what they have learnt with their students and colleagues is all part of the philosophy of PrintPromotion in holding such courses. "We train the experts so they can take on a multiplier role in their home countries", explains PrintPromotion's Managing Director Dr. Markus Heering. When the specialist teachers go home after the course with a higher awareness of quality and pass it on to future specialists, then this is long-lasting promotion for modern printing technologies. With this in mind, PrintPromotion has set up a global expert network as a non-profit organisation within the German print and paper machine manufacturing industry with the focus on gaining qualifications in modern, premium quality print processes.

The participants of the Specialist Teacher Course at the AZP in Chemnitz were always keen to document what they were learning in order to share their newly acquired knowledge with their students and colleagues in their home countries.

Adriana Rodriguez Lezaca is among the participants from 15 countries from Africa, Asia, South America and Europe. She has been teaching at the Centre for Design Technology and Business Productivity in Giradot in Colombia since 2006. Despite all her professional experience, she reports she has already learnt so much in the first week. "There was a lot that was new to me, especially when it comes to data preparation and colour management". Ms. Rodriguez Lezaca herself trained as an industrial designer and now teaches budding graphic designers. "It's important they understand the overall process and get to know about modern printing technologies and today's opportunities for quality assurance during their training," she says.

To ensure that as many trainees as possible can benefit from her newly gained expertise, she will be passing on what she has learnt to her colleagues in centres that are part of SENA (Servicio Nacional de Apredizaje – the national education service). With its 117 training centres throughout Colombia, SENA is the second largest national education organisation in South America and systematically focuses on a dual education system. For Adriana Rodriguez Lezaca there is another aspect of these training courses: the opportunity to exchange experiences with colleagues who often have to teach under difficult conditions. Her institute, for instance, shares the printing technology they need with SENA institutes in other regions. They have set up around a dozen computer workplaces for prepress in a converted bus, which is also equipped with several small digital and offset printing presses. When practice sessions are on the curriculum, this training print shop on wheels commutes back and forth between the regional institutes.

Another continent, another situation: It was not easy either when Frank Boadu began teaching at the Kumasi university print shop in Ghana. State funds threatened to dry up. However, the team did not give up but actively acquired printing jobs from the university itself and local businesses. The print shop flourished, achieved financial independency and in the meantime actually helps to finance the university. Students learn here under real market conditions and their teachers spend many evenings in the print shop, working on urgent jobs. "Our revenues have shaped up so well that we have gradually been able to add modern print shop technology from Germany to our existing machine inventory," reports Frank Boadu, who in the meantime now heads prepress in the print shop. They bought another new machine at the last drupa, which is a good reason for the 31-year old to literally soak up the contents of the specialist teacher courses. What he learns here about modern print shop workflows is important in two respects. On the one hand, it will help him to fully exploit the new press's potential and, on the other hand, he will be able to pass on his knowledge immediately to the next generation of print engineers and printers. "I'm learning here about the possibilities especially in colour management, colour proofing and calibration that at the moment we don't work with at all," he explains. The benefits of standardised quality assurance methods are plain to see: "You don't need many of these time-consuming coordination loops with the customer," he says.

According to Boadu, the aim of the university administration in Kumasi is to ensure that students can learn about state-of-the-art technology. This is already happening in the press sector. With the newest Computer-to-Plate technology and press and postpress machines from leading German manufacturers, the university is creating an environment that will produce highly qualified specialists for a modern printing industry. "We need more training and more education to meet the demands of the growing printing sector in Ghana," says Boadu. Whether publishing or packaging printing, the expert sees great potential in his home country since up to now many local companies have been outsourcing their printing to India or China. This hopefully is about to change. "For instance, to sustainably develop the packaging sector, we are focussing not only on packaging technology, design and printing but also recycling technologies", he reports.

Thanuja Damayanthi Wijesiri Mudunkothge teaches at the Sri Lankan Institute of Printing (SLIOP) in Colombo. Students graduating with diplomas in graphic design, print technology & management, as well as visual communication & management can go on to do an MBA degree thanks to a collaboration with the University of Colombo. SLIOP has confidently set its sights on becoming a world-class enterprise that, with its qualified graduates, can help Sri Lanka's printing industry gain international competitiveness. "In the sectors printing technology, graphic design and visual communication we are the leading education facility in Sri Lanka." explains the young teacher. This is also because the instructors continue training and keep track of the new trends. However, she also admits that the technology environment in her home country still trails behind such high goals. "We haven't got the sort of technology that we're working with here at the AZP in Sri Lanka yet," she says. However, because she can see how much technology needs to catch up, she considers it important as a teacher to get to know the latest technology. This way she can teach future specialists about cutting-edge technology, while keeping an eye on the future of the Sri Lankan printing industry. "We need better printing quality to keep up with world standards," she explains. The key to this is modern printing technology and quality assurance methods.

A letter from India

My Visit to the "Origin of Print"

It's been a month since I started my work back in India, in the University. Thought, at least this period has to be given to allow the ultimate experience to be gelled in. Incidentally the Semester has started earlier than my arrival so that I get into the job straight away. Am I doing the same routine? Was there any difference in the approach or the way it's been conducted? Thinking about it, even though everything started with the same routine and function, there is a definite shift in executing and delivery. And there is a value addition in every segment of work done. More ideas and procedures are in the offing.

Thanks to the 30 days of immense drill given by PrintPromotion. It was an eye-opener after spending so many years in industry and academic institution.
It was reassuring and added more strength to the conviction that print is forever. I heard a lot and had hands-on experience in the machines, but the course has also given first-hand information on German technology and given the opportunity to "See It to Believe It".

The well-structured course offered at the AZP with the specialists on the job helped to clear so many queries, which was otherwise presumed to be known, by the practical approach. The real highlight is the visit to the manufacturing plants and the printing houses. It is very clear and open that our printing technology is nothing shorter than the space technology. Still there are a lot of challenges and unpredictability in the field, in terms of meeting the standards and control; it gives an opportunity to learn and to expand knowledge. As the expectation and demand is growing continuously in the industry, there is always a need for innovation and new ideas.
The amazing thing was the interaction with the teachers from all over the world in printing technology. Irrespective of their specialization and knowledge base, the one thing which I found in common is that they are all student-centric and giving their best to the students. This assures that the growth of printing is in safe hands. This PrintPromotion course has prepared the teachers at the right time with the right knowledge, which will be subsequently transferred to the student community who are going to be the printers of the future.

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An inspiring event: The Specialist Teacher Seminar in Rio

From 24 to 26 October 2017, PrintPromotion carried out a Specialist Teacher Seminar in Rio de Janeiro.

The Brazilian specialist teachers of the printing and media industry were given insight information into new technologies all the way from prepress to printing and paper converting. At the SENAI printing school in Maracana, where the seminar took place, Dr. Markus Hering, Managing Director of PrintPromotion, could welcome 20 participants to the 3-day event, among them, this time, also students from nearby printing institutes and universities.

The training was given by a specialist from the Training Centre for Graphic Arts and Printing Technology (AZP) based in Chemnitz/ Germany, Mr. Jürgen Seidel, together with Ms. Jaqueline Pax Bonoto, a former participant of a PrintPromotion course in Germany, in Portuguese. PrintPromotion has joined forces with the AZP offering specialist teacher courses and seminars worldwide for many years now. The attendants will be able to share and apply their new knowledge, which will help boost the quality of printing in Brazil.

The participants were attentively listening to what Mr. Seidel from the AZP could tell them about the latest developments in prepress, and


in the press section.


Furthermore, finishing.

Transatlantic cooperation – VDMA & PrintPromotion signed agreement with NPES

In July 2017, The VDMA Printing and Paper Technology Association & PrintPromotion signed an agreement with NPES – The Association for Suppliers of Printing, Publishing and Converting Technologies representing more than 600 U.S. companies outlining a 2017–2018 framework for cooperation between the organizations in the areas of industry market data and national conferences. The collaborative efforts of the two organizations will produce a variety of new initiatives, e.g., Quarterly Market Data Reports, an Annual State of the Printing and Paper Industry Report as well as an Annual Industry Symposium, hosted alternately by VDMA/PrintPromotion and NPES, with the first symposium to be scheduled in 2018 in Germany. Furthermore, the two associations will co-produce events titled "Print Media Management Conferences," which will serve as international knowledge sharing forums and provide dynamic networking opportunities for industry buyers and sellers to connect.

The first events jointly staged by VDMA & PrintPromotion as well as NPES are "Print Media Management Conferences" for printers and converters in Brazil as a forum for knowledge sharing. The target group of the events comprises experts from companies and training institutions. Four American technology manufacturers will join the 11 German manufacturers in order to inform about new technologies, applications and best practices in their respective sectors. The overall subject of the conference is High-Tech Solutions for the Printing Industry – Getting Ready for the Future and it will take place in the following cities in Brazil over the following dates:

São Paulo	27 November 2017
Curitiba	29 November 2017
Porto Alegre	30 November 2017

Worldwide studies for print

Within the scope of the VDMA/PrintPromotion and NPES cooperation, the two associations partnered with The Economist Intelligence Unit, the business information arm of The Economist Group, for the conduct of World-Wide Market for Print (WWMP) studies. The first one, the "Worldwide Market for Print 2.0: Global Opportunities in Packaging", analyzed the global print packaging market within 26 countries, which account for 80 % of global GDP and 70 % of the world population. Six countries were selected for a "deep-dive analysis". The study gives data for the period 2011-2015 and annual five-year forecasts through 2020.

The second study, completed just recently, investigates the "Worldwide Market for Print 2.0 (WWMP): Global Opportunities in Publishing Printing and Marketing & Commercial Printing". According to the new study, 71% of total world publishing printing revenues are currently concentrated in the top five markets, comprised of China, U.S., Japan, U.K. and France, however, the largest share and fastest pace of future growth will be recognized in emerging nations, primarily in the Asia-Pacific region. India's large market is identified as the most opportune global bright spot, projected to grow significantly at 8.1% annually, adding $1.2 billion of domestic revenue from 2016 to 2021, and supplanting the U.K. as fourth among the top five nations. The study features: Trends within all respective market segments; key drivers of change; deep dives into six key country markets (U.S., Germany, China, India, Mexico and Indonesia); regional and 26 country profiles; specific market recommendations and opportunities.

The Packaging study is already for sale. The second one is exclusively available to the member companies for six months.

PACK PRINT INTERNATIONAL 2017 in Bangkok closed with record success

Pack Print International, Southeast Asia's leading exhibition for packaging and printing sectors, carried out in Bangkok from 20 to 23 September 2017 posted record figures with 17,452 trade visitors from 59 countries, 300 leading exhibitors from 25 countries as well as concurrent conferences, seminars and forums attracting over 800 attendees. The German pavilion, organized by the Ministry of Economics and Energy and supported by the VDMA Printing and Paper Technology Association as well as PrintPromotion, met with great response. Nine medium-sized German companies used the four days of the exhibition in Bangkok to give printing and packaging experts from the whole region a description of the advantages of a digitally networked production. The exhibitors appreciated that existing contacts could be strengthened, numerous new ones could be made in the Asian region and that good ideas for the further development of products and business areas could be gained during the talks at the pavilion.
The next edition of PACK PRINT INTERNATIONAL will be held from 18 to 21 September 2019 at BITEC in Bangkok.

The quality pledge "Made in Germany" proved to be a magnet for the visitors with a wide spectrum of professional backgrounds – ranging from retail, creative agencies, labelling and corrugated packaging to various application sectors, including cosmetics, food and beverage production, pharmaceuticals and multinational brands.

The VDMA pavilion at the Shanghai World of Packaging – an attractive showroom for packaging technologies

It`s just a matter of time until China will supersede the U.S. as the world-wide largest packaging market. Accordingly, it is important for the suppliers of packaging solutions to show presence in China.
An excellent opportunity to enter this market was the Shanghai World of Packaging (swop) trade fair from 7 to 10 November with its four specialized events PacPro Asia, CHINA-PHARM, FoodPex and BulkPex. The VDMA Association for Printing and Paper Technology as well as Messe Düsseldorf had organized a German pavilion, and twelve medium-sized German companies took this chance to present themselves to the 30,000 trade visitors who flocked to the Shanghai New International Expo Centre. These exhibitors saw the swop as a good platform to meet existing customers and to make new contacts, above all since the trade fair was not only visited by professionals from China, but also from the surrounding growth markets.

No matter whether the packaging is made of paper, cardboard, plastic foils, metal or glass. The demand in China is on the rise. On the one hand, because this country has a growing consumption-friendly middle class who appreciate products in high-quality packaging. On the other hand, because there are more and more single-person households with a demand for small packaging sizes and convenience products. With its four specialized trade fairs, the swop addresses both the demand for packaging solutions for food, beverages and pharmaceutical products and the demand for packaging means, packaging and transportation technology.

Therefore, it is equally interesting for the suppliers of printing and paper technology, plastics and rubber machinery as well as packaging machines. In view of that, the presentations of the German exhibitors to the Chinese trade public under the label "Made in Germany" included increasingly networked machines, plants and components which make packaging production and packaging finishing highly efficient, very economical and resource-saving for the user.

The German pavilion at the SWOP was a real eye-catcher.

It was bustling with visitors who wanted to see and gather information about the latest innovations from Germany.

Calendar of events

Specialist Teacher Seminars	Ghana	CW9
	Colombia	to be decided
VDMA/PrintPromotion and NPES Industry Forum	to be decided	spring 2018
German Pavilion at Expoprint	Sao Paulo / Brazil	20–24 March 2018
Specialist Teacher Course	Chemnitz / Germany	6 June – 4 July 2018
German Pavilion at All in Print	Shanghai / China	24–28 October 2018
Print Media Management Conference	Jakarta / Indonesia	September 2018

New PrintPromotion partner: LEONHARD KURZ Stiftung & Co. KG

KURZ, the new PrintPromotion partner, is a worldwide leader in hot stamping and coating technology with over 5,000 employees. The company provides complete solutions that include project consultancy plus machine and die technology. With 14 production sites in Europe, Asia and the USA, 24 international subsidiaries and a worldwide network of agencies and sales offices, KURZ ensures short routes, reliable delivery and individual on-site assistance.

Company news

Successful anniversary week on the **company's 200th birthday**

Koenig & Bauer celebrated its 200th anniversary with a festive week in Würzburg which drew to a close with more than 13,000 visitors at the Open Day on 23 September.

At the colourful official ceremony in the Vogel Convention Center (a former press hall), CEO Claus Bolza-Schünemann welcomed 650 guests from all over the world.

Several hundred customers and business partners used the jubilee to take a tour round the main plant of the Koenig & Bauer Group in Würzburg.

650 guests from all over the world attended the official ceremony in the Vogel Convention Center (VCC). In his welcoming speech, CEO Claus Bolza-Schünemann dealt with the history of the company, which is closely linked to that of his own family. He thanked generations of customers, executives and employees for their contributions through economic crises, wars and technological transformations, stressing that print has been keeping the company and its employees moving for 200 years now, that even in a digitalised world, it is always an exciting task finding new technologies, solutions and applications for print with which the customers can be successful.

Many of the participants took the opportunity to visit the parent plant in Würzburg. In addition to state-of-the-art production facilities and the new Demo Center for digital and flexo printing presses they experienced historical and current printing presses in production from the broad portfolio of the oldest printing press manufacturer. A circular motion press from the year 1868 printed an engraving of the company's birthplace, the monastery Oberzell, a Super Orloff Intaglio III press printed a specimen banknote, the Genius 52UV from KBA-NotaSys printed a security document, the digital web press RotaJET L printed, among other things, a 2.2 m long poster of the Würzburg-born basketball star Dirk Nowitzki. And the world's largest inkjet press, the HP T1100S, produced for HP by Koenig & Bauer, printed a 2.8 m wide topliner for corrugated board.

In a multimedia show, the eventful history of the company was presented from 1817 to the present day. Today, the world's second-largest printing press manufacturer offers solutions for almost all print markets. Bolza-Schünemann: "From morning to evening, we meet printed products that were produced on Koenig & Bauer presses: from the directly printed perfume bottle in the bathroom in the morning, the newspaper at the breakfast table, banknotes, credit cards and a wide range of packaging when going shopping, to books or magazines in the evening. The best thing about this is that most of these print products cannot be replaced by online media or computer screens, and the demand is continuing to rise. This makes us optimistic for our future."

Koenig & Bauer wants to improve its market share further in flexible packaging printing, corrugated board printing and the marking & coding sector. New products such as the VariJet 106 digital hybrid press featured at drupa 2016 as well as digital, flexo and offset presses for corrugated board, metal sheets and beverage cans are intended to contribute to this. In the course of the official jubilee ceremony, Mr Bolza-Schünemann announced the order of the first digital CorruJET sheetfed press for corrugated board.

A young but expanding business area is that of industrial applications such as decorative printing, which Koenig & Bauer successfully addresses with the RotaJET VL, which is up to 2.25 m wide. On account of the drop in demand for new presses in the business with web offset presses for newspaper and commercial printing, the Würzburg company now plans to expand its services to cover older presses. New services have also been offered within the framework of digital transformation (KBA 4.0).

Koenig & Bauer AG

Relaunch of the brand Koenig & Bauer

The printing press manufacturer is starting off the company's 3rd century with a new market appearance. The brand KBA, which was introduced in 1990 after the takeover of Albert-Frankenthal AG, will revert to the original brand of Koenig & Bauer, albeit with a completely new look for the logo, means of communication, business equipment and product design. Koenig & Bauer AG today has 33 subsidiaries. 12 of them produce their own products for their own customers. From now on, all activities of the Group, from classic printing to digital printing - including prepress and post-press and top service – will be combined under a strong common roof again. The new market presence also includes the new claim we're on it. Mr Bolza-Schünemann: "Our mission: to bring together what moves our customers forward." The ampersand symbolises the brand core of Koenig & Bauer and combines the values of the company, which are "Tradition & Innovation", "Requirements & Technologies", "Approachability & Professionalism".

KOENIG & BAUER

Back to the roots with a view forwards: the new word mark of the Koenig & Bauer Group. The ampersand between the surnames of the founders of the company was chosen as the short form of the brand name Koenig & Bauer, designed in the new company font, for promotional activities, stickers, drawings, spare parts etc. It now also stands as a 3 m high cast column beside the new Demo Center.

Koenig & Bauer AG

KBA Report becomes **Koenig & Bauer Report**

In line with the new brand appearance, Koenig & Bauer Report No. 51 has also been treated to a design make-over.

The comprehensive brand relaunch is also reflected by the latest 51st issue of the customer magazine Report. First published back in 1994, KBA Report has now become Koenig & Bauer Report – with a new layout, typography and colour scheme. What has naturally remained unchanged, of course, is the diversity of informative reports from print companies in different countries and market segments, on technical and process innovations, trends in the branch and the most varied business philosophies. Alongside articles on the brand relaunch and the anniversary festivities, the 56-page magazine is once again packed with interesting user reports from market segments ranging from commercial and book printing to packaging and newspapers. Koenig & Bauer Report is published in German, English, French, Spanish and Italian. Copies can be requested from local regional offices or from the central marketing department of Koenig & Bauer AG. A PDF version of the magazine is also available for download at:
https://www.koenig-bauer.com/downloads/koenig-bauer-report/

Koenig & Bauer AG

Finishing 4.0 Solution wins award

Müller Martini had the great honor of being presented with the 2017 Swiss Industry 4.0 Award for its Finishing 4.0 book production line for runs of one copy at the Swiss Industry 4.0 Conference in Baden/Switzerland. With its forward-looking Finishing 4.0 strategy, which draws on Industry 4.0, Müller Martini ensures all its systems meet the requirements of the increasing customization and personalization of print products and the production of ultra-short runs.

(From left to right) The three representatives of Muller Martini Volker Leonhardt, Markus Bracher and Roland Kost together with Philippe Ramseier (representative of the co-operation partners), Nina Havel (moderator) and Christian Wasserfallen (member of the Swiss parliament), who hold the laudation.

The Connex workflow system that was developed by Muller Martini connects all work steps. First it reads the book data from the PDF. The size and job data are prepared for the digital printing press. The individual book is printed onto a web and processed into a book block. The book block and the cover are glued together in the Vareo perfect binder and then trimmed to the final size in the InfiniTrim three-knife trimmer. The size, thickness and content of each book can differ, and all settings are performed fully automatically.

Runs of one copy, which are especially associated with photo books, pose major production challenges. They require a seamless and touchless workflow solution like Connex that controls the whole process. Muller Martini designed the Vareo perfect binder and InfiniTrim three-knife trimmer to enable the production of runs of one copy – the entirely new, highly automated systems boast revolutionary technology. That has numerous logistical advantages. Book producers can eliminate their stock and no longer need to print minimum runs. That is a key advantage given that an extensive part of the books printed worldwide are never delivered and are fed into the recycling system directly from the warehouse. As a result, on-demand production also protects natural resources.

Müller Martini AG

Exceptional finishing solutions

Inspire / Create / Decorate is the motto of KURZ, the new PrintPromotion partner. As a full-range design and service provider, the company provides exceptional solutions both in aesthetic and technical terms. For the graphics sector, KURZ advances hot stamping and cold foil technology, designs the digital future of finishing, embraces trends and opens up new markets. For brands, the company`s solutions offer decorative protection and functionality.

A leader in the security elements industry for over 40 years, KURZ is a pioneer of combining decoration, security, function and interaction. Customers can use the pooled expertise of the company`s innovation specialists OVD Kinegram for the management of light, PolyIC for printed electronics, KURZDIGITAL for digital software solutions and KURZ for decoration and security elements for cards - such as credit, bank and payment, customer, loyalty or prepaid cards; furthermore ID documents such as identification cards or driving licenses. The company`s state-of-the-art-application technology and long-term experience (in card technology since 1970) are providing innovative card designs including data storage and security features for counterfeit-proofing. KURZ creates turn-key solutions and takes care of each card project as a complete package. Global presence provides not only international local customer service, but also supply chain security.

Another business sector of KURZ is Thermal-transfer Foils including color your brand® even in custom corporate colors and even if it involves very special color blends. For that KURZ develops exclusive thermal-transfer ink ribbons which can be held constant for the customer over the years.

LEONHARD KURZ Stiftung & Co. KG

Digital web-fed printing **with integrated metallization**

In September, Leonhard Kurz presented a world first at Labelexpo in Brussels: the DM-Liner UV-Ink Built-in finishing station, integrated into a narrow-web printing and further processing machine.
This transfer station for digital metal foil from Kurz is a component of the new Mlabel Generation 3 Mprint printing system which prints, finishes, punches and weeds labels. The range of functionality of the Mlabel system includes, inter alia, the trouble-free integration of the digital metal transfer step into the digital printing process.
At the exhibition, a metallized variable design was applied to the labels in the DM-Liner station, and then overprinted in color and further processed in the inkjet printing system. The design of the label was selected to illustrate the unique creative possibilities of digital metal finishing, which can be used to metallize not only large areas but also filigree details. Fine cutouts and reverse types are also possible. High edge definition transfer of the digital metal foil can be achieved even at fast digital printing speeds.
The transfer station integrated into the Mlabel machine is a built-in version of the DM-Liner UV-Ink for digital web-fed printing machines. The DM-Liner UV-Ink Roll-to-Roll is additionally available as a built-on module for web-fed flexographic printing machines and as a stand-alone machine. The DM-Liner UV-Ink Built-on is significantly more compact as it can utilize the corona unit, the winding and unwinding unit, edge guide controller and registration camera of the flexographic printing machine. The built-on module is mounted on a versatile mobile roller system which enables the metallization to be performed either upstream or down-stream of the flexographic printing process.

Web-fed labels finished with variable designs using KURZ DM-Liner UV-Ink technology

The DM-Liner UV-Ink Stand-alone for web-fed printing is suitable for any printing process. This unit offers an extremely flexible means of producing metallic effects on a digital, offset or flexographic printer. To produce vibrant metallic colours, for example, the print product would first be finished and then overprinted with coloured ink. Variable data can be added at a later stage of production by downstream metallization.

LEONHARD KURZ Stiftung & Co. KG

New colours for hot stamping

At Luxe Pack in Monaco in September, current design and colour trends were at the center at the KURZ booth. The company presented new and unusual colours for hot stamping enhancement.
In developing these colour innovations, the Kurz design team has drawn from its latest trend analysis. The annual Kurz trend study, carried out with a trend agency, sifts through hip lifestyles and documents current trends. After categorizing five trends, designers have developed hot stamping foil colours which transmit an attitude to life, capture sentiments and reflect the zeitgeist.
One of the trends, "Subresistance", is marked by rebellion, individualization and the revival of punk and underground culture. This mood is conveyed with dark, hard tones and camouflage colours. The trendy Kurz colours are called "Sub Camu" and "Golden Punk", a muted camouflage green with classy shimmering metallization and a newfangled green-gold in which the contrast between cool dispassion and glossy exclusivity dissolves.
Kurz additionally presented, for the first time, the third edition of its "Box in Box" packaging collection. Four boxes nested into one another represent four popular trends, and inside the last package there is a surprise involving a fifth trend. The boxes illustrate which stamping and enhancement methods can implement the individual trends.
The trend "The Art of Life" is characterized by a fascination with natural phenomena. The trend box features iridescent light reflection and a rainbow effect induced by microstructure stamping and holographic design playing in different colors. Changes in light amplify the playfully tactile charm, plus embossed, debossed and flat hot stamped lines turn the box into a sensory experience.
Another trend, "I-Skin", is represented with a membrane-like structured surface that is technically symmetrical and perfect while softly pulsating and mimicking nature. This effect is evoked with artful large-area micro embossing.

The KURZ trend box "The Art of Life", part of the Box-in-Box number three

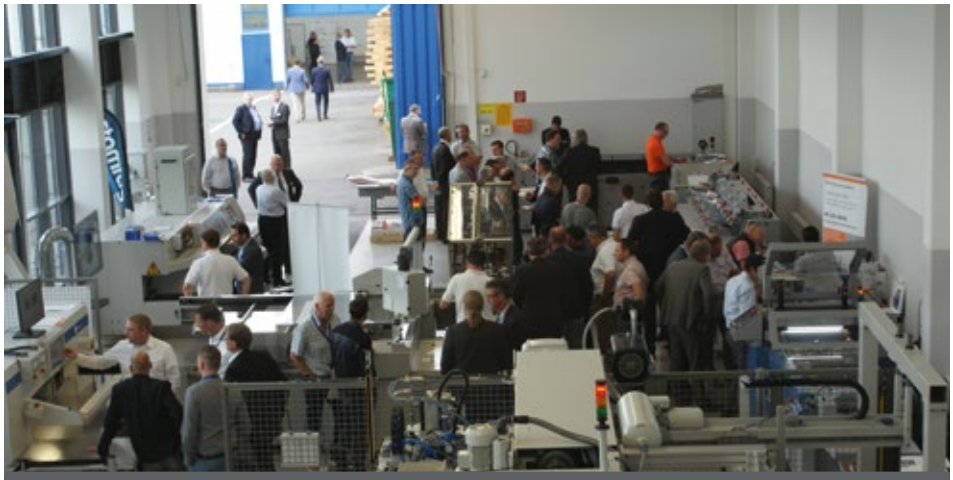
The KURZ trend box "I-Skin", part of the Box-in-Box number three

LEONHARD KURZ Stiftung & Co. KG

Successful **Label and Finishing Days**

From 27 to 29 June 2017 BaumannWohlenberg, Solms, and HEINRICH BAUMANN, Frankfurt am Main, held their first joint Label and Finishing Days which took place at the premises of BaumannWohlenberg at Solms-Niederbiel. Various co-exhibitors, both from the field of label production and from the print finishing sector, participated in the open house.

With their Epsilon Label-System in combination with an ATLAS 1110 made by BLUMER, BaumannWohlenberg showed a system which is perfectly suited for cutting large volumes of paper or IML labels. In addition, BaumannWohlenberg presented their offline jogging system OMEGA which is used for the offline material preparation of paper or IML labels. The system can also be used for job printing works and works completely automatically.



Exhibitors and organizers agreed that the first joint Label and Finishing Days of HEINRICH BAUMANN and BaumannWohlenberg were a great success. More than 300 visitors seized the opportunity to get a comprehensive impression of the innovations and novelties for label production and print finishing.

BLUMER showed their latest version of an ATLAS-1110 LS label production line including the newly developed and patented "Gripper-Edge 1 & 2" features. The ATLAS 1110 LS took the strips, which had been cut on the BaumannWohlenberg cutting-line, and turned them into packs of banded labels. STAMFAG, producing a variety of ram-punch dies used in the process of manufacturing wet strength paper, aluminium and synthetic materials-based labels, also participated in the open house. They presented various punching dies for different applications, as well as newly developed punching dies, equipped with air-waste removal and control sensors. Many customers took the opportunity to discuss some general or more specific questions regarding die-cutters with the experts from STAMFAG. The labels processed during the open house were printed on paper of FELDMUEHLE Uetersen.

However, the first joint label and finishing days were not just an interesting event for label-producing companies but also a highly interesting event for visitors from the finishing sector. Hohner Maschinenbau showed their saddle binder HSB 9.000, Bograma from Switzerland presented their basic rotary die-cutter BSR 550 basic, which is suitable for the production of various products. MBO, manufacturer of folding machines, presented the new Combi-Folder K80 for the first time during the open house in Solms. WOHLENBERG bookbinding systems showed a Quickbinder, and AVD presented their Europa Digital Laminating System. Kern had a Kern parcel-terminal on display. EDALE, a leading supplier of high technology, narrow-mid web flexographic and digital printing presses and converting equipment, completed the exhibition programme.

Baumann Maschinenbau Solms GmbH & Co. KG

First cross-strapping machine for corrugated board

In August this year, MOSCA officially launched the Universal Corrugated Bundler (UCB), the first cross-strapping machine for the corrugated cardboard industry. The manually operated CE-compliant machine straps complex four-or six-point folding cartons.

Mosca developed the UCB cross-strappping machine specifically for use in the corrugated cardboard industry.

This is made possible by a product alignment on up to six sides. Comprehensive network communication as well as formula storage via touch panel round out the possibilities of the high-quality machine.
The Mosca UCB simplifies strapping on non-symmetric cartons and other complex products. The machine can be put into operation immediately without additional safety measures. The UCB straps folding carton stacks with polypropylene straps in widths ranging from 5 to 12 mm. The operator simply removes the folding cartons from the folding and gluing machine, places them crosswise and feeds them into the UCB. The machine`s conveyor system guides the stack inside and aligns it on five sides. The symmetrically movable alignment units position the product optimally to the central SoniXs ultrasonic sealing unit. An optional back pusher is available for even more precise six-sided alignment. After the product is fully aligned on the strapping level, the UCB automatically straps it and moves it forward out of the machine. Up to 32 single strapping or 20 double strapping cycles per minute are possible. The machine can also be integrated into a fully automated line.
The operator controls the UCB intuitively via touch panel. Package dimensions can be entered along with the strapping positions. The UCB adjusts smoothly to packages with a width of 120 to 1200 mm. Automatic strapping and machine configuration ensure maximum flexibility. Operators can also store preset formulas for frequently used products via touch panel or control desk and quickly retrieve them. The Remote Monitoring Interface (RMI) enables to retrieve and monitor the UCB and its current strapping programme from practically any device, including smartphones.

As part of the machine`s network capability, Mosca specialists remotely launch routine maintenance on the UCB and assess potential problems. This makes the UCB perfectly suited for Industry 4.0 operation.

Mosca GmbH

In-mould labels with a plus in efficiency

The in-mould label market is continuously growing globally at around 4.3 % (Awa Global Inmould Study 2017), and more than two thirds of the worldwide production is required for food packaging.
Heidelberg is now offering an enhanced rotary die-cutter based on the XL technology, in addition to food-safe, highly efficient print production. The Speedmaster XL 106-DD unites two key production steps in a single machine – a unique combination in the market. The rotary die-cutter's first unit places the injection hole in the label for the subsequent production process by means of a die on a magnetic cylinder with maximum precision. Even the tiniest holes of five millimeters diameter or more are possible. Up to now, this was a separate step that consequently extended the production time of the respective job.

The cut out material is safely and reliably removed by means of an extraction system. The second unit of the XL 106-DD subsequently cuts out the contour of the label from the sheet. At the end of the day, this combination of the two production steps in a single pass means a downright doubling of the die-cutting throughput, while makeready times and costs for die cutting tools can be reduced to half of the previously required.

The XL 106-DD processes foils and paper with thicknesses of 0.05 to 0.3 mm at a throughput of 6,000 to 10,000 sheets per hour – almost twice as fast than a flatbed die-cutter.

The enhanced Speedmaster XL 106-DD rotary die-cutter cuts in-mould labels with injection holes of five millimeters diameter or more, and removes even the tiniest cut out waste completely and reliably in a single step.

Injection holes of five millimeters diameter and more can be cut, thus all the needs that are customary in the industry can be met. Apart from in-mould labels, the XL 106-DD can also cut plastic or paper packaging elements, such as POS items which, due to their design, need a "window" or hole for mounting in the shelf or for attaching to the product.

Apart from the XL 106-DD, Heidelberg presented the entire range of print and postpress solutions for in-mould, wet glue and self-adhesive labels to the around 200 Label Day participants at the Print Media Center in Wiesloch-Walldorf at the end of September. Solutions for the in-mould label production in the food sector were presented on a Speedmaster XL 106 with LED UV drying. In addition to working with the Speedmaster XL 106-DD rotary die-cutter, Heidelberg demonstrated just how label printing can become even more productive using a special in-mould label package for the Speedmaster XL 106. Demos of a Speedmaster XL 106-8+LYYL with inline finishing and a Speedmaster XL 75-8+LYYL Anicolor 2 with Multicolor workflow focused on the economical production of wet glue labels.

Heidelberger Druckmaschinen AG

Versafire digital printing family upgrade: Making good things even better

After Heidelberg recently underlined its aspirations to further strengthen the company's position in the printing press sector under the theme "Heidelberg goes digital!", the digital printing division disclosed new features for its Versafire digital printing family of which more than 1500 Versafire systems have already been installed.

In addition to the neon yellow spot colour launched in 2016, Heidelberg will introduce another spot colour: neon pink. Doing this, Versafire CV owners are able to deliver even brighter posters, dazzling party invitations and bills, eye-catching advertising leaflets, even in short runs, with or without personalization, and most important in a most cost-effective way. The neon toner glows under UV light, enabling it to attract even more attention and add unexpected touches to printing applications in the digital printing field.
In total, four additional toners can be used each in addition to CYMK: high-opacity white, varnish for full-area or spot coating, neon yellow and neon pink. The operator can realize the applications quickly and confidently, with using the new Prinect Digital Frontend Version 2018 features or using the PDF-Toolbox. All hardware required is the toner and an additional developer unit. Retrofitting to all Heidelberg Linoprint CV or Versafire CV printing systems with five colour configuration is also possible.
An impressive feature of the Versafire product family is the flexibility to print on a wide range of media. However, settings for heat-resistant plastics or structured materials may be quite complex. To enable every Versafire user to print outstanding results, Heidelberg offers a new training programme, which includes an innovative and exclusive Media Management Tool for the Prinect DFE, to quickly setup, save and recall all media settings for complex substrates. The settings can be saved and recalled anytime and be exchanged between Versafire machines.

Following the successful introduction of the neon yellow toner in early 2016, another eye-catching splash of colour will be available for Heidelberg's Versafire CV: neon pink.

The Prinect Digital Frontend, specifically developed for the Versafire digital printing system, provides uncompromising support for the printing process. With the new version 2018 enhanced features are the new montage editor, a speed enhanced preview function and an improved user interface design.
A further example of how professional functions from the world of offset printing can be successfully transferred to digital printing is the Production Manager Digital. Customers are able to enjoy professional functions, such as the possibility to integrate the digital printing workflow into their offset workflow or connection of

Prinect Digital Frontend v2018 for the Versafire family – now with montage editor. Detailed customer feedback was incorporated to further enhance usability.

their open (B2C) or closed (B2B) web-shops. The integration of the customers, the uploading and downloading of data, as well as the automatic processing of data, can be realized via the Prinect portal. In addition, automatic version updates, also of the Prinect Digital Frontend, are possible with the Production Manager Digital. Without any doubt, business intelligence is key in many regards. This is why Heidelberg introduces the known software Analyze Point within the Production Manager Digital. Analyze Point provides numerous reports based on job and production data to keep an eye on day-to-day production and also make longer-term decisions on the basis of key figures. These reports provide a comprehensive overview of the jobs currently in production and the long-term production outlook.

Heidelberger Druckmaschinen AG

500th Miraflex goes to Pakistan

Handshake at drupa 2016 between W&H managing director Peter Steinbeck and Syed Hyder Ali, managing director of Packages Ltd.

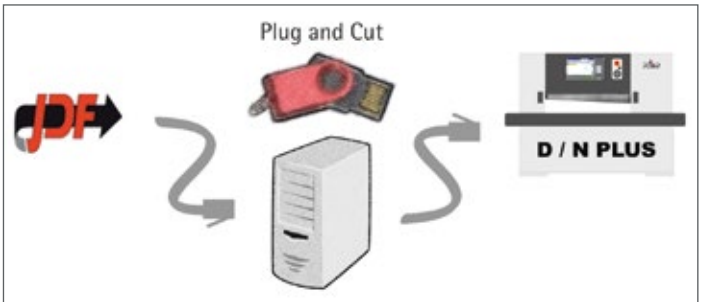
From the outset, the MIRAFLEX C. I. flexo printing press was met with enthusiasm from customers all over the world. Machines of the type series MIRAFLEX C, A and S are now in use in around 70 countries worldwide. The new generation MIRAFLEX II was presented at drupa 2016. The 500th machine of this series, a MIRAFLEX II CM8, has been purchased by the Pakistani packaging manufacturer Packages Limited.

The company was founded in 1956 as a joint-venture between the Ali Group of Pakistan and Akerlund & Rausing of Sweden. Packages Ltd. is the largest manufacturer of flexible packaging in Pakistan. The company has grown significantly in recent years and the requirement for investment is also correspondingly high. In addition to the 8-colour MIRAFLEX II, Packages Ltd. has also ordered a VAREX II 7-layer blown film extrusion line by W&H, which is the first machine of this type in Pakistan. In 2009, Packages Ltd. had already invested in a VAREX blown film extrusion line and in 2012 the company installed the first gravure printing machine of the series HELIOSTAR SL in Pakistan.
With the MIRAFLEX II, the Pakistani pioneer has also decided on W&H for its flexographic printing machine for the first time. Packages Ltd. values and highly rates not only the combination of quality, service and innovation but also the training courses that Windmöller & Hölscher offers for customer personnel in the W&H Academy. Hence Packaging Ltd. has invested in a training programme for the machine personnel of the MIRAFLEX II so that the operators are able to take advantage of the full potential of the machine right from the beginning. The start of production is planned for December 2017.

WINDMÖLLER & HÖLSCHER KG

Compucut® GO for easy automation

With the POLAR Compucut® GO, Polar is offering a simple automation solution in the field of cutting. It automatically converts the digital sheet layout into a cutting programme which is then transferred to a POLAR cutting machine. This eliminates the programming time spent at the guillotine type cutter.
POLAR Compucut® is the state-of-the-art software for setting up cutting programs. This software benefits from POLAR's enormous cutting know-how and experience gained over more than 25 years.
In Compucut® GO, POLAR is now offering an additional version of this workflow software. Both versions are based on identical cutting rules, but Compucut® GO is reduced to the basics. Designed according to the motto "Plug and Cut", there is no need to even install the software, as it runs on the medium which is installed on a computer. The PC is integrated into the network and therefore connects the prepress stage to the guillotine type cutter.
At the prepress stage, the digital sheet layout is stored as a PPF or JDF file. This file is then placed into the Hot Folder which is regularly checked by Compucut® GO. Every time Compucut® GO detects a new file, it starts processing it right away. Based on a strictly defined sequence of initial cuts it sets up the cutting programme and sends it immediately to the memory of the machine. In contrast to the standard Compucut® programme, the GO version works solely in automatic mode. Consequently, due to the automated work flow, there is no need for the operator to intervene manually. Compucut® GO therefore has no user interface at all.
This additional Compucut® version is available for all of the POLAR D PLUS cutting machines and POLAR N PLUS high-speed cutters. The software will be delivered as from December 2017.



Compucut® GO – a simple automation solution for cutting

Compared to the GO version, the standard Compucut® programme offers many more features. In manual operation, for example, the programme allows the sheet to be modified. This can be particularly beneficial, if you do not cut a section, but wish to keep the sheet whole and finish it. While only one machine can be connected to the GO version, there is no limit to the machines connected to a classic Compucut system. You can not only integrate several machines, but also include an external cutting programme database. There is an option for configuring each machine with the existing special options. Another highlight of the classic version is the preview, which enables the operator to view a soft copy of the printed sheet.

POLAR MOHR Maschinenvertriebsgesellschaft GmbH & Co. KG

Ergonomic stacking of folded sheets

Up to now, the Transomat unloader has been known as part of a cutting system enabling the productivity of the cutting machine to be increased by up to 50%. However, a wide range of applications are possible. For example, when positioned directly on the folding machine delivery unit, the Transomat unloader can also be used to optimize one-person operation on the Heidelberg Stahlfolder TX 96. This not only simplifies the stacking of the folded sheets, it also ensures the performance of the folding system. The stacked folded sheets come out of the folding machine and just need to be pushed onto the Transomat pallet on level and arranged there. Placement on the pallet is then carried out automatically layer by layer. At a moderate machine speed of 110 m/min, this enables the operator to process more than 18,000 sheets per hour with ease.

The Heidelberg Stahlfolder TX 96 stands for maximum productivity during folding. The folding system combines two principles to increase performance: oblong format processing and shingled folding. With this innovative concept, 18,000 sheets/h can be processed at a low machine speed and thus maximum process reliability. The result is a completely new level of performance in the industrial folding of signatures. When combined with the palamides alpha 700 hd stack delivery and automatic stacking with the Polar Transomat TRE, the Stahlfolder TX 96 can be operated by just one person. The recipe for success in the Stahlfolder TX 96 is therefore:

Ergonomic stacking of folded sheets with POLAR Transomat TRE

an increase in performance at the same machine speed thanks to shingled folding and oblong format processing. This raises the performance of the folding machine to the same level as that of the printing machine.

POLAR MOHR Maschinenvertriebsgesellschaft GmbH & Co. KG

Fantastic case study of a packaging solution

The KOLBUS Luxury Packaging Team has become well-known for ideal solutions and striking designs, supplying information and suggestions on questions ranging from design to processing methods and from possible applications to new manufacturing techniques.

Recently, this team implemented a fictional label dubbed "August & Christine Marie" as an historical link to the couple who founded KOLBUS as a company specialized in building paper processing and bookbinding machinery. KOLBUS has been active in the luxury packaging market segment for several years now, leveraging its technology know-how to build highly automated packaging production systems. The company`s decades of experience working with fine cardboard, glue, sensitive lining materials and printed substrates all fed into engineering the new flexible machine line for the automated production of luxury packaging. Packaging also demands skill in working with thicker cardboard, which has to be grooved, lined, embossed, folded and fitted with magnetic closures in a continuous automated process. Often the process requires that several packaging elements be handled and put together, instead of a complicated manufacturing process or having the packaging handmade, a high-performance, automated production line can produce the required quality at cost-competitive prices and with total flexibility as regards production volumes. Fast reaction times, consistently high quality and packaging produced close to its point of use mean that customers can order on a just-in-time basis with all the cost and logistics benefits this bring.

Personalised gift sets of gourmet jam. A gorgeous sample of the solutions proposed by the KOLBUS Luxury Packaging Team.

A sample of the result of the imaginary project "gift sets of gourmet jam" from the manufacturer "Château Beau Jardin" is available (while supplies last) against a small charge for postage and packing. To get one, send your request by email to packaging@kolbus.de with "petits fruit d`été sample box" in the subject line.

Kolbus GmbH & Co. KG

First paper mill on Arabian Peninsula to convert WFU paper

BW Papersystems and its brand WillPemcoBielomatik will supply the cutsize and folio sheeting plus packaging equipment to Ittihad Paper Mill's (IPM) greenfield fine paper mill in Abu Dhabi, U.A.E.
As from late 2018, IPM will produce uncoated woodfree paper (WFU) for high-quality printing and writing paper grades. With the new sheeting and packaging equipment from BW Papersystems, IPM will be the first paper mill on the Arabian Peninsula that is able to convert paper reels into traditional copy paper sizes like A4 or 8 ½" x 11" to various other US, metric, digital ream sizes and to large format paper sizes.
For the converting of copy paper, BW Papersystems will deliver a 10-pocket cut-size sheeter with dual high-speed packaging lines up to automatic palletizers as well as a highly flexible 6-pocket cut-size sheeter with adjacent ream wrapper. The 10-pocket line alone will contribute an output of more than 120,000 tons per year.
For the folio-size portion, IPM will be supplied with a new Falcon folio sheeter for sheet formats ranging from 400 x 450 mm to 2500 x 1650 mm. The new Falcon sheeter with non-stop pallet change, combines well-known technology from the original brands E.C.H. Will, Jagenberg folio sheeters and MarquipWardUnited. A folio ream wrapper with single and double stack non-stop palletizer completes the large order scope, matching the size range of the Falcon folio sheeter.

BW Papersystems Hamburg GmbH

With the new paper converting equipment, Ittihad Paper Mills will be the biggest and most modern plant in the Middle East area.

New LED products for sheetfed offset printing

IST METZ is offering a completely newly developed portfolio of LED products for a huge variety of applications. Following its world premiere release at the IST UV Days event held at the IST headquarters in Nürtingen/Germany, the flagship for the new product range is the water-cooled high-performance LED system known as LEDcure. This variable system guarantees optimum coordination to suit the differing requirements of sheet-fed offset presses. Newly-developed, interchangeable optics ensure optimum light yield on the substrate. The systems are available in different wavelengths or in a mixture of wavelengths, the standard being 385 nm. Water-cooled LED chips guarantee a high level of efficiency and system durability.

IST has long been globally recognized for providing the highest performance, reliable and longest lasting UV platform in the traditional UV curing arena called LAMPcure. Now the same attributes are provided on the LED side. Compact. Modular. High performance. A smart modular basic concept in combination with an extremely robust and compact design provide the user with maximum flexibility and versatility. The length of the system can be freely scaled and also adapted to suit all machine formats and installation situations. This allows an IST LEDcure unit to be used in a variety of positions on a press.

The new LEDcure is the final element in the completely reengineered range of LED solutions supplied by IST in collaboration with its subsidiary, Integration Technology Ltd. (ITL). Synergies between the two companies are having an increasing impact here – like the XT8 Booster, for example. XT8 booster technology means that the LEDcure also has up to 30 % more output than currently available LED systems. Other highlights of the new LEDcure technology include straightforward exchange of the optic and the possibility of upgrading the LED chips further down the track. IST's LEDcure delivers a very high output at the usual distance of 80 to 100 mm from the substrate, required in sheet-fed offset printing. The issue here is not just maximum radiation intensity, the so-called peak, but the fact that the broad irradiated area of the LEDcure provides extra drying time as well, also referred to as the dose. This is known to be an equally important factor in the efficient curing of LED inks and varnishes. HANDcure is the mobile wirless UV LED handset which IST METZ now offers for

The mobile LED handheld HANDcure from IST METZ is ideally suited for spot and area irradiation.

irradiating spots and larger areas. The HANDcure is typically used for cross-linking and detection. At an operating voltage of 15-18 VDC, the device runs on a battery and uses a spectral range of 365 nm to 415 nm. The basic variant weighs 1 kg. This allows fatigue-free working in a huge range of applications. The HANDcure contains no mercury, nor does it produce any ozone.

As a leading supplier of systems, IST METZ has always felt an obligation to support its customers in an advisory capacity, which is why it gives them the option of using customer-specific data to proof-print on the in-house printing press in 3B format with seven print units and a coating unit. In general terms, both UV beginners and experts can expect long-term support with any issue relating to LED and UV technology in the UV/LED Transfer Center also including a flexo web press and highly sophisticated lab facilities at the head office in Nürtingen in Southern Germany.

IST METZ GmbH

Upgrade for the **booming ProFold 74 folder gluer**

KAMA is experiencing a boom in demand for the folder-gluer ProFold 74 with a wide range of applications for both job printing and packaging, and KAMA is constantly improving the ProFold 74 based on a modular design. Now, the sheet feeder has been equipped with a quick adjustment for the draw-off belts. This reduces the set-up times considerably. Adjustable deck reels optimise the blank separation and the proper transfer to the transport module also for smaller blanks and products. Generally, the handling is simplified and the output quality is improved.
The application range of the ProFold 74 also includes dispensing and pick & place of cards, adhesive tape, product samples, etc. Using the Job-Planner software, the set-up is performed quickly and easily allowing repeat orders to be more readily available. In addition to folders, envelopes, folding cards and capacity products, the ProFold can also process jobs from packaging such as pillow boxes and folded cartons.

Kama GmbH

Reduced set-up time: Quick adjustment on the feeder of the ProFold 74 for folding, gluing, and dispensing. The machine is increasingly being used for the production of folding cartons too.

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Screen printing – Part 3

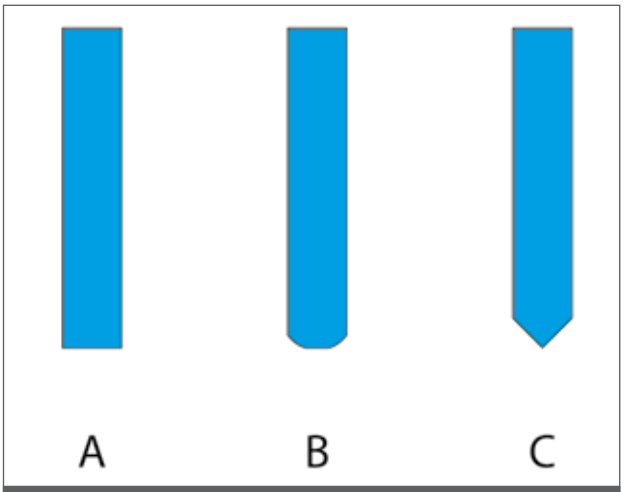
The screen printing production process is influenced by numerous factors. Besides the characteristics of the screen printing forme, the most influential factors are the blades or squeegees and the flood bars as well as their settings, the type of printing machine or printing table in manual printing, the off-contact and screen lift setting as well as the properties of the printing substrate and the printing ink used.

Depending on the application, the blades or squeegees used in screen printing differ as regards their shape and material. The specialists among these blades are the RKS squeegees and the roller squeegees. The RKS squeegees have a narrow blade made of glass fibre-enforced plastic with a plastic lip at the top. Roller squeegees are preferably used in large-format flat screen printing. They are cylindrical metal profiles which are guided during the printing process by means of a magnetic field. The most common shape in screen printing is, however, a blade made of rubber or polyurethane with a blade holder. During printing, the blades are in permanent contact with the inking systems and cleaning agents so that they feature high resistance to numerous chemicals. Nevertheless it can`t be ruled out that chemicals will penetrate and make the blade swell. Another aspect is the embrittlement of blades as a result of the constant contact with chemicals or the insufficient removal of ink residues. Embrittled blades often produce unclean prints. Damages on the surfaces manifest themselves in streaks in the printed image. Careful cleaning of the blades after printing, regular sharpening of the beveled edges of the blade and early replacement of used blades help to avoid these problems.

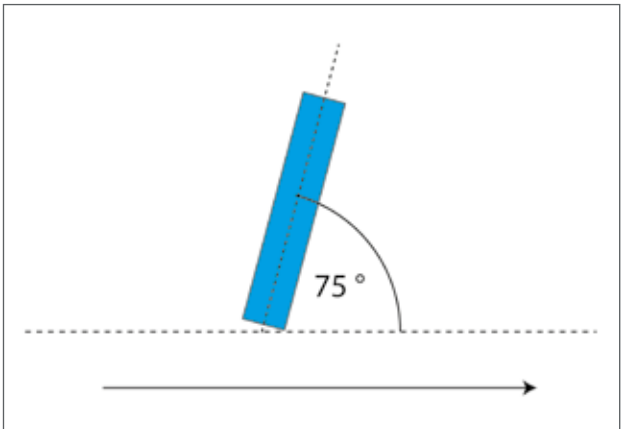
During the printing process, the squeegee or blade, respectively, changes its shape and thus adjusts to the surface of the screen in printing direction. Through the choice of different hardness degrees, different print results can be achieved. Soft blades ensure the transfer of a high amount of ink. The ink is swiped into the screen. As a consequence, the coloured areas are saturated and feature rather unsharp print edges. Therefore, details in the printed image may get lost or be flooded. High-quality raster printing inevitably requires a hard blade. It is less prone to losing its shape and cleanly shears surplus ink from the screen so that only the ink contained in the mesh is printed. The result is sharp printing edges. The hardness degree of blades is measured in Shore A, as is customary for elastic plastics. The usual Shore grades are in the range from 60° to 80° Shore A. The lower the Shore grade, the softer the blade.
With increasing printing width, it is recommendable to use hard blades in order to ensure clean blade guidance. It should always be kept in mind that the use of hard blades reduces the service life of the printing forme. As a result of the interaction with the necessary contact pressure it may easily occur that the copying layer or even the screen gets damaged. In practice, besides simple blades also combinations in the form of duplex or triplex blades have increasingly been used. In this case, rubber and/or plastics of different shore hardness are combined. Besides the Shore hardness, the characteristics of the blade edge have considerable influence on the transfer of ink and the details in the printed image.
The image on the right shows typical blade profiles.

Where screen printing machines are used, careful setting of the blade as regards its parallel position to the screen, the contact pressure and the angle is of major importance. The screen will quickly get damaged when the contact pressure is too high or parallelism is not ensured. The normal blade angle in relation to the screen surface is approx. 75°. During the printing process, the blade can slightly retract to the rear and evenly press the ink through the screen. If a flatter screen angle is selected, the blade can easily yield so that it only wipes over the surface of the screen. In this case, a high amount of ink is transferred, and it may happen that ink creeps under the screen. The printed image is not clean and starts to become slurred. Frequent interruptions of the printing process and cleaning of the screen are inevitable.

A typical misprint: Streaks in the printed image



The different blade pofiles: A= standard profile; B = V-shaped profile with flat tip; C = V-shaped profile with sharp tip

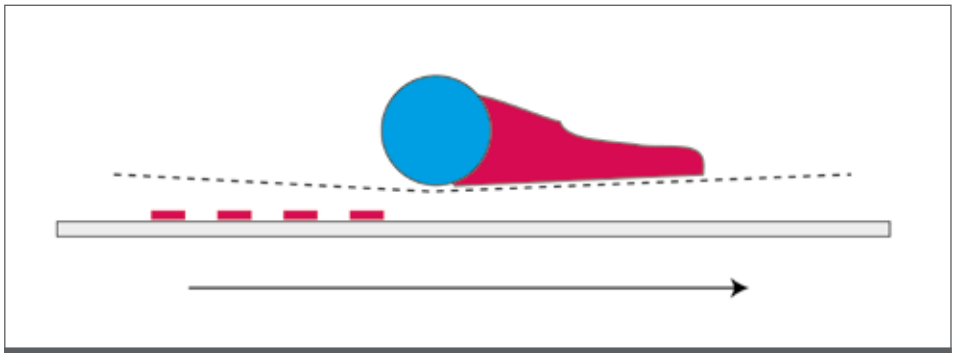


The squeegee / blade angle is the angle formed between the face of the squeegee / blade and the plane of the screen.

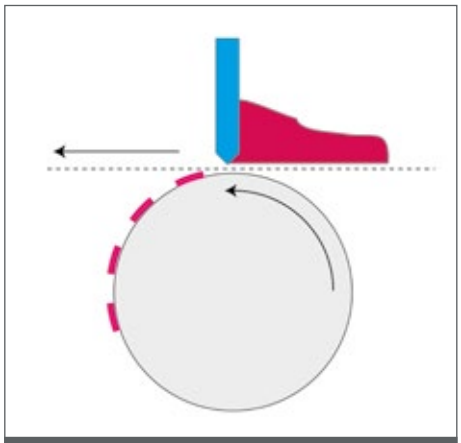
When a steeper blade angle is selected, the blade gets stiff and yields during the printing process to a lesser extent. The blade pressure is directly transferred to the printing line at the blade top and the screen surface is squeegeed cleanly. Ink transfer is reduced to a minimum. In this case, the screen is mechanically stressed to a large extent. Furthermore, the screen is strongly stretched in the printing process, which may result in register differences in printing direction. In the end, the perfect interaction of blade angle and blade pressure are decisive for the quality of the printed image. With a correct blade profile and angle, only low blade pressure is needed in order to dissolve the ink from the screen cleanly. The blade pressure should in general be reduced to a minimum.

It must be maintained stable for every order. Any change during the print run will result in deviations in the deposition of ink and thus differences in the print result. When a printing order consists of several screens, the blade pressure of the different screens should always be kept at the same level in order to avoid register differences due to changes of the print length of the screens. The necessary blade pressure is linear to the blade width. With increasing blade width, the pressure must also be increased accordingly.

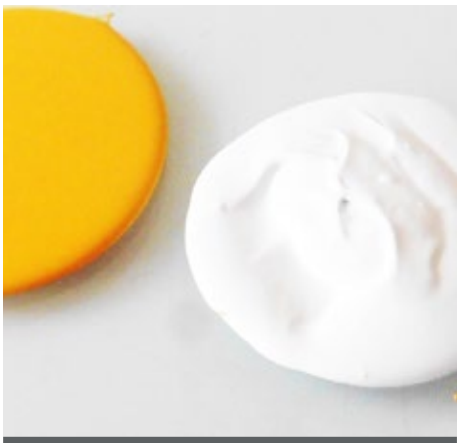
In order to guarantee clean and sharp edges in screen printing, the setting of the off-contact must be correct. Without off-contact, the screen would be permanently in contact with the substrate in flat screen printing. The printing ink could inevitably not be prevented from creeping under the screen and slurring. The off-contact is a very small distance between the screen and the substrate which must be overcome by the blade pressure and the elongation of the screen. The resulting contact zone between the substrate and the blade tip is reduced to a minimum and clean dissolution of the ink from the screen is made possible. The size of the off-contact depends of the screen size and the substrate. Normally, 2-3 mm are enough. When the off-contact is too high, there will be strong dimensional changes of the screen in printing direction, and furthermore the printed image will be distorted and there will be register differences in multi-colour printing. As an extra, many screen printing machines support maintenance of a constant level of the off-contact by means of a lifting movement of the screen. For that, the screen is minimally lifted with the running blade movement. Off-contact and screen lifting correspond with each other. The higher the screen is lifted, the lower can the off-contact be kept.



Schematic of a roller squeegee



Schematic of three-dimensional printing



Ink and its consistency

For special applications of screen printing, e.g. in large-format textile printing with roller squeegees as well as three-dimensional printing and in rotary screen printing with a blade in a fixed position, the parameters and settings described above are only partly applicable. As far as the roller squeegees are concerned, it is not possible to change the blade angle. The deposit of ink can be influenced by using roller squeegees with different diameters. The necessary blade pressure can be adjusted by means of the strength of the magnetic field. In three-dimensional and rotary screen printing with a fixed blade, there is no off-contact. Curving of the substrate and/or screen ensures a low contact zone between the screen and the substrate.

Regarding the substrate and the printing inks that can be used, only few generally applicable statements can be made. The fields of application are simply too manifold. In general it can be said that there is hardly any substrate which cannot be decorated in a screen printing process. As a result, all commonly used inking systems are applied in screen printing as well. Of key importance in products with especially high demands are 2-component inks. These inks consist of a basic ink and a hardener. Once the hardener has been added, there is a defined processing time that must be kept. After that time, the ink can no longer be used. The deposited ink film is interlinked by polymerisation similar to UV inks and thus very resistant.

Screen printing inks are often described as rather high-viscous. In practical use, the viscosity of the screen printing inks may, however, vary from high-viscous to low-viscous. The actually required viscosity primarily depends of the screen mesh used. The rougher the mesh, the more rigid the ink consistency. With very fine meshes from 120 threads per cm, a thick ink may rapidly block the screen. Therefore, the screen printer is required to set the optimal viscosity and to prevent early drying in the screen by adding additives. Ink that is optimally set should keep the screen free in the flooded condition and permit printing interruptions of several minutes without drying.

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