tesa –
Partner to the Paper and Printing Industry

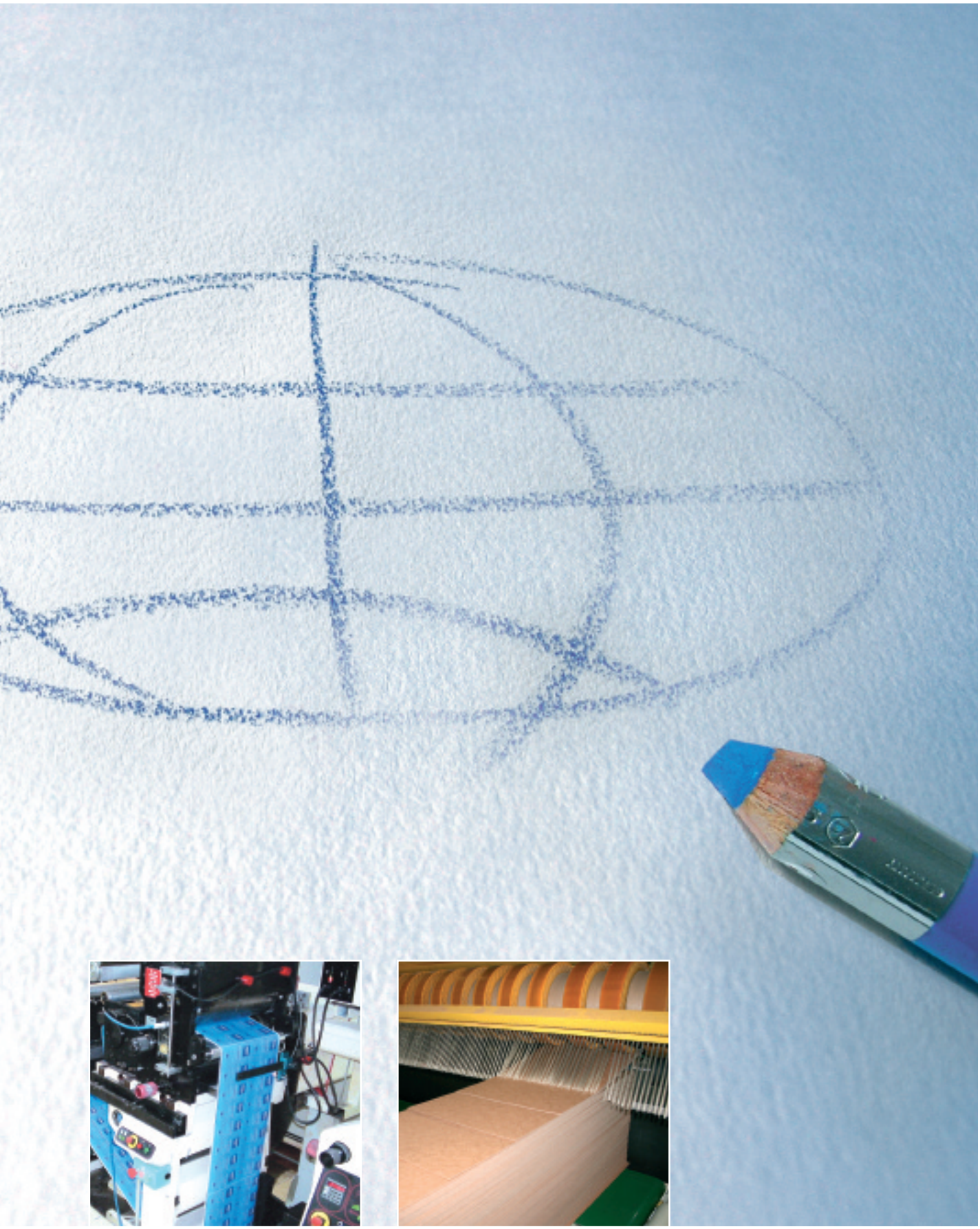
Professional Solutions for the Paper and Printing Industry

tesa –
Bringing Self-Adhesive Solutions to the World

The tesa Group is one of the world's leading manufacturers of technical adhesive tapes for industry and the consumer. The success story began with tesafilm®, the company's flagship transparent tape for office and home use. First marketed in 1935, tesafilm® has become known as a symbol of quality in Germany and many other European countries.

Today, nearly 80% of tesa's revenue comes from self-adhesive solutions used in industry and commerce. For the paper and printing industry and for flexographic printing, tesa continues to develop innovative self-adhesive products that accommodate the growing trend towards automation, while also optimizing production processes and increasing their safety and efficiency. Double-sided adhesive tapes for flying splices; plate mounting tapes for flexographic printing; and intelligent packaging concepts for the corrugated cardboard industry – tesa works closely with machinery and equipment suppliers to develop a wide variety of cutting-edge, application-specific solutions, specifically adapted to customers' needs. With its own research labs in Germany, the United States, China, Japan, and Singapore, tesa is involved in the ongoing development of new products and refinement of existing ones. The result is an ever-increasing rate of innovation, which had already reached 43% in 2005. The company also sets ecological standards through innovative approaches, such as the continuous development and use of new technologies to produce solvent-free tapes.

Founded in 2001 as an independent stock company within the Beiersdorf Group, tesa is among the market leaders in Europe and is in second place worldwide. In 2005, the company posted total sales of € 745 million. Its 51 international subsidiaries, with 3,600 employees, 1,600 of them in Germany, market tesa products in more than 100 countries. The company's 10 production sites, located in Germany, Italy, the United States, China, and Singapore, ensure that clients all over the world can benefit from the same high standard of quality.



Paper Industry –
Reduce Costs, Increase Safety with tesa

From special papers for technical use, to newspapers and catalogs, to disposable products such as diapers and tissues – day after day, people all around the world come into contact with paper, more so than with almost any other product. Despite the growing importance of electronic communication, this has not declined. Just the opposite, in fact: global paper consumption is growing, with no end in sight. Market experts forecast that, by 2010, annual worldwide consumption will have risen from its current level of 330 million to over 420 million tons. Nowadays, paper can be produced on machinery with capacities of up to 400,000 tons per year, with the largest machines processing widths of over 10 meters. In this high performance industry, with its complex, challenging production processes, efficiency and speed are increasingly of the utmost importance.

As a specialist in technical tapes, tesa offers innovative, cost-effective system solutions for the production process involved in paper manufacturing – in production of raw paper, coating, finishing, slitting and sheeting. For example, tesa adhesive tapes' accurately calibrated physical properties enable secure and extremely fast adhesion of the splice during roll changes. Particularly challenging is the flying splice method, where the expiring roll is spliced with a new one without reducing production speeds of 1500 to 1900 meters per minute. High tolerance of tension and pressure are essential, as are finely balanced adhesion and good tack for the exact moment when the tesa tape makes its rapid contact.
Whether during splicing, or when patching holes in paper webs, tesa adhesive tapes and die cuts ensure a continuous, smooth production process and the highest levels of quality, efficiency, and economic feasibility.

As tesa adhesive tapes for the paper industry are water-soluble, they can be repulped without any problems at all. The pulper separates paper fibers from non-paper substances and sends them on for further processing.

Offset Printing – Into a Fully Automated Future, with tesa

We still enjoy reading the paper: in 2005, 439 million people around the world bought a newspaper each day. Moreover, the total number of daily readers is estimated at more than 1 billion. Around the world, daily newspapers are predominantly produced using the coldset offset printing process. The performance of offset printmg presses remains impressive – depending on the type of system, more than 100,000 newspapers can be produced hourly. In this high-speed production process, heavy paper rolls rotate at print speeds of up to 1000 meters per minute. More color, better paper quality, and especially the increase in standardization, and with it profitability, are the most important trends in newspaper printing. This, in turn, points to the trend towards higher levels of automation, shorter changeover times, and reduction of waste, such as that caused by web breaks during splicing.

With the development of its EasySplice® line, tesa has set standards worldwide for the efficient, fast, and secure performance of flying splices during roll changes in newspaper printing. The new generation of tesa EasySplice® products also lives up to the highest quality expectations. New and improved adhesive masses enable increased initial tack and reliable adhesion on most qualities of paper, even if prepared paper webs are stored for longer periods. This means a considerable reduction in wastage rates. “Less is more” is also the motto of the new tesa EasySplice® Newsprint technology, which cuts splice preparation times by two-thirds – and with markedly greater protection against web breaks. And, because these processes are increasingly executed automatically by machines, tesa also offers double- sided special tapes that represent a new technology for fully automated splice preparation. Innovation paired with first class quality, developed in close cooperation with equipment manufacturers. The benefit: simpler, extremely safe production processes that ensure greater efficiency and higher value creation.


FEUILLETO
Halbgötter in Schwarz

Heatset Offset Printing – High Performance at High Temperatures, with tesa

Beaming celebrities, brilliant color photos, poolside landscapes with tropical ambience – lifestyle magazines, general interest publications, advertising inserts, and travel catalogues are mainly printed using the heatset offset printing process, a web offset technology that was developed for high-quality satin-finish or coated papers and that has limitless possibilities for the technical realization of diverse formats and high circulation volumes.

The heatset offset process uses print inks that dry with brief heating. This special printing process comprises many individual process elements. The printed paper web is first run through a gas-heated drying oven, where temperatures soar to as much as 250°c. Chill rollers then regulate the temperature of the web down to a moderate 25 to 30°c, and a rehumidifying system allows the paper web to regain its earlier pliancy.

Ongoing efficiency increases, low tolerance for negative impacts on quality and an absolute minimum of maculation are the hallmarks of heatset offset printing presses. System components that are designed to work together are becoming more and more important in ensuring high productivity and print quality. tesa EasySplice® Heatset products make a considerable contribution to optimizing the processes in all methods of splice preparation for flying splices. High performance heatset offset printing machines reach speeds of 80,000 to 100,000 copies per hour. A flying splice is necessary about every 20 minutes. The tesa EasySplice® product line offers state-of-the-art technology for fast, secure splicing in the heatset process.

The newest product development in the tesa EasySplice® line is tesa EasySplice® Heatset Black, with a built-in black backing for optical splice recognition by laser. The main advantage of this approach is that it is no longer necessary to apply additional black detection labels. A typical solution from tesa, saving time and money.

tesa's specially developed adhesive masses are also highly sophisticated, tolerating even more than the substantial temperature rise and fall that paper rolls undergo in the heatset offset process. Outstanding tack and easily removable liners are additional characteristics that have helped tesa make a name for itself throughout the world as a provider of first-class products.

Flexographic Printing – Superior Handling, Top Print Quality with tesa

The shopping bag is 100 years old. Nowadays an all-purpose item, it weighs a scant 20 grams, but can transport an impressive 20 kilograms. Whether as a boutique tote, grocery bag, or conference giveaway, this mass-market product, originally developed for the food industry, has progressed to become a high-tech accessory that carries intricate advertising messages. The handle bag is an indispensable aid to shopping and and even reflects a society's prosperity, but is just one feature of the global packaging business, which is worth about $ 430 billion, with annual growth rates of between 2% and 4%.

Enterprises rely on high-quality shopping bags, and brilliant colors, fine images, and photo-quality illustrations are top of the agenda. Today, packaging with such sophisticated printing is mainly produced using flexographic printing – currently the main industrial relief printing process worldwide. Flexographic technology is on the rise throughout the world, and promises high growth rates in the future.

Flexographic printing can be used for a range of materials, requires only short print preparation times, is low-cost, and yields clean prints. The process uses flexible photopolymer plates with a backing layer, a light-sensitive relief layer, and a protective film coating. After a finishing process, the plates are mounted on a sleeve or print cylinder using a plate mounting tape.

To achieve optimum prints, tesa offers a full line of plate mounting tapes, each tailored precisely to different printing process requirements, for example, the mounting of thin plates used for sophisticated raster printing. In this technique, the printed dots are very fine, and requires a harder printing plate, which, in turn, demands a softer foam plate mounting tape. Firmer foams, on the other hand, are better suited to color transfer in solid and combination printing. The diverse foam thicknesses, acrylic and rubber adhesive masses and different adhesive strengths, permit customized use in all modern-day flexographic printing techniques. Printing plates can be mounted smoothly, repositioned easily, and removed simply, all without residue after demounting: additional advantages that make tesa plate mounting tapes the best possible choice for flexographic printers.


SOMMER

ASTRAFLEX

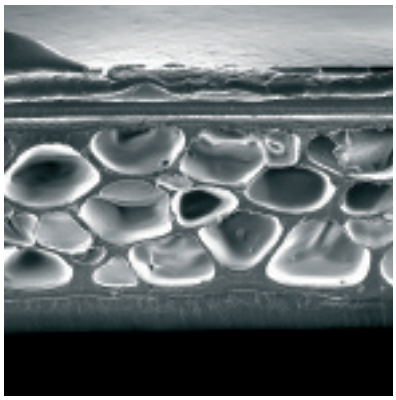
Flexographic Label Printing – Always Full Speed Ahead, with tesa

From barcodes to holographic film labels: the times when labels served only to tell what a product was, and nothing more, are definitely long gone. Labels have become an important feature of marketing strategies and labor intensive packaging designs. The labelling sector faces particular challenges, such as extremely high requirements for images and intricate complexity of designs; as well as the need to process new materials. New laws and regulations, along with the need to display multilingual content, demand that space on labels be used with the utmost efficiency. The prospects are promising: the market for self adhesive labels alone is growing by an average of 5% worldwide, and in hot spots like Eastern Europe by as much as 19% each year.

Those who want to stay competitive in the highly dynamic label printing market have to deliver high-quality print results and react quickly to customer requests. Designs, and especially frequent design changes, are very demanding. One label alone may contain fine color gradients and ornate lines, along with saturated full-tone areas. For optimum print quality, all the steps of the process must be designed to work together in perfect harmony. Plate mounting tapes play a crucial role in ensuring that this is the case.

The tesa specialized product line for flexographic label printing offers tapes with the right foam hardness and adhesive properties for all printing techniques. The amount of physical and technical know-how contained in each plate mounting tape is not immediately apparent, but is nonetheless hugely significant. The carefully formulated special adhesive masses, which enable simple, rapid, and low-residue removal of even the thinnest printing plates, but adhere securely to both the cylinder and the plate during printing, are just one example of this. The most important element of the tapes is their foam backing: SEM images show that the closed foam cells in tesa® Softprint plate mounting tapes tapes have an extremely uniform cell structure. The result is even distribution of pressure and a consistency of foam cells that is precise to the thousandth of a centimeter.

Solutions that win over their audiences: the jury for the World Label Awards, for example, which has granted prestigious awards to tesa® Softprint customers.



SEM image of the tesa foam backing

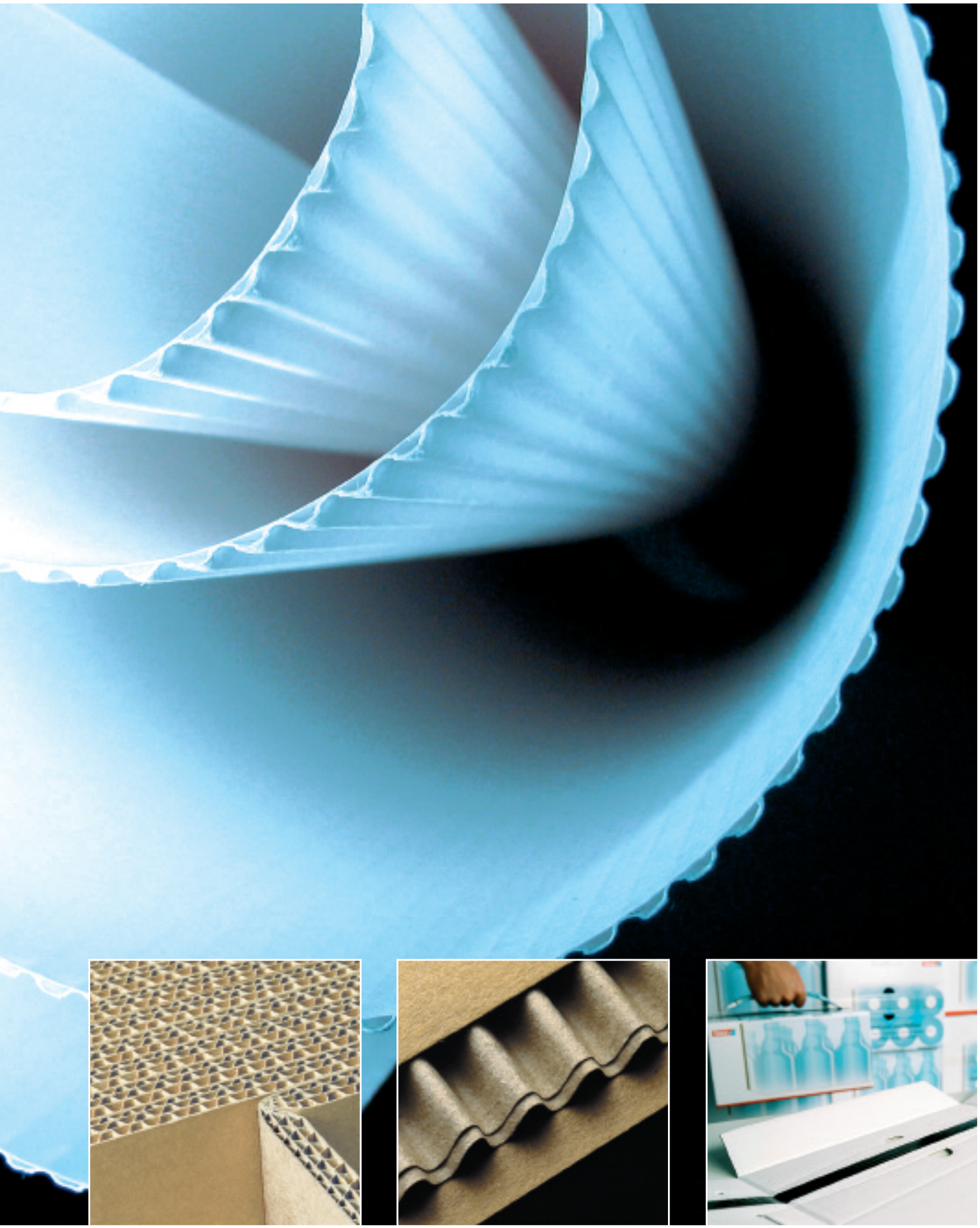
The Corrugated Cardboard Industry – Riding a Wave of Long-Term Success, with tesa

It's the chicken and the egg again – only this time, the question is not which came first, but rather why a brooding hen does not crush the egg's wafer-thin shell. The secret is stability through the dispersal of pressure. Viewed from a physics perspective, the pressure is absorbed by the arcs and evenly distributed to the outer layers. The nascent packaging industry began making use of this principle of construction 130 years ago. Today, the corrugated cardboard industry is one of the largest segments in the packaging business, with annual packaging production valued at over 90 million dollars per year.

Corrugated cardboard is produced from cellulose. In its simplest form, it consists of a thin sheet of corrugated paperboard, glued between two flat layers of paperboard. Two-layer, three-layer and multi-layer grades correspondingly have more corrugated layers. Various forms ensure that individually tailored packaging is available for any product, from extravagant champagne flutes to diesel engines.

Corrugated cardboard is manufactured on cutting-edge, high-output, corrugated cardboard systems that can produce 1000 square meters of corrugated cardboard per minute. tesa offers the corrugated cardboard industry a full line of high performance adhesive tapes, which can be integrated easily into the production process and can be processed even at high run speeds, from splicing during roll changes to professional solutions for opening cardboard boxes with tear strips of various types. These innovative double-sided self adhesive solutions are especially useful in fields concerned with the reinforcing and closing of packaging. When they are carried, boxes have to withstand heavy pressure. To provide optimum handle reinforcement, tesa offers outwardly invisible adhesive tapes, containing built-in tear-proof thread – a concept that is as technically sophisticated as it is visually convincing.

For the corrugated cardboard industry, tesa uses its know-how as a specialist in technologically sophisticated, double-sided adhesive tapes to ensure rapid, clean closing of cartons. Resealable packaging opens up new possibilities for the packaging industry and offers greater convenience for the consumer. This is made possible by a second adhesive strip, protected by a special partition film, that can be removed easily when needed. Returning an item couldn't be simpler.



Trust in the Future – with tesa

Not only can tesa look to its 120 years of experience in the development of adhesive masses and coating technology, but today it is also one of the world's leading manufacturers of technologically sophisticated self-adhesive system solutions. From its beginnings as a provider of competent product solutions, tesa has now developed into a specialist in designing comprehensive solution concepts. The tesa product line for industrial applications in the paper and printing industry is characterized by high efficiency and extremely convenient handling. In each segment, tried and tested solutions are included alongside high-end products that are breaking new technological ground in their respective fields.

With over 2000 patents and an innovation rate of 43 %, tesa is constantly developing innovative solutions, each tailored to the specific needs of customers and the manufacturing processes involved. The company's products and system solutions focus on the needs of future markets and technologies. The staff of tesa's research laboratories conducts advanced research into new adhesive masses and backing technologies that are capable of doing more and more. The future lies in adhesive technologies that not only bond two things together, but take on additional functions as well. Process engineers use process simulations and state-of-the-art test designs to determine how suitable products are for production purposes. Among the company's most successful innovations for the paper and printing industry is the introduction of the splicing tapes with which tesa revolutionized the flying splice. Within just six years, tesa has expanded its splicing product line to include a wide variety of products to meet customer-specific requirements.

The tesa Group also sets benchmarks for quality standards and environmental protection. Using innovative coating technology, developed and patented by tesa, the company's location in Offenburg, Germany already produces 60% of its adhesive tapes without using solvents. The group has also implemented comprehensive measures to increase its energy efficiency and reduce its emissions. The companies of the tesa group are certified under the international quality standard ISO 9001 and the environmental norm ISO 14001, which applies worldwide. These initiatives have enabled tesa to further expand its status, now not only regarded as a global partner to industry, but also as a partner that upholds demanding standards.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Working Together to Plan Success – with tesa

Fifty-one regional subsidiaries, customer service and sales in over 100 countries, production sites in 10 locations: around the world, tesa offers outstanding, broad-spectrum service. Highly qualified specialist advisors and application engineers analyze the production processes used by their clients in the paper and printing industry and develop customized concepts. The result is technology created in close teamwork with printing houses and manufacturers of paper and printing equipment.

Specialist tesa advisors and process engineers are often called in by clients as early as the prototype stage. tesa then monitors the application of the prototypes, even beyond the final implementation stage. The intensive exchange of experience and ideas between tesa and its customers also extends to the system construction industry and to assemblers, research institutions and universities. This generates technological know-how that enables not only the continual optimization of customers' production processes, but also provides for the early recognition of future trends and new self-adhesive solutions.

So that the technological potential of tesa's self-adhesive solutions can be fully utilized, the company offers its partners regular training sessions in addition to specialized advising on-site. Knowledge of the fundamentals of adhesive technology, and of the specific characteristics of adhesive masses and backing materials and the criteria for their use, enables participants to select the solutions most suitable for their needs.

Along with technological optimization, increasing added value is also key during periods of increasing competitive pressure. The compatibility of tesa products with the increase of full automation in the printing and paper industry reduces costs and ensures greater efficiency. At the same time, tesa's specialized advisors offer individual economic feasibility analyses that show the best solution for each case from an economic standpoint as well – and as always, with an eye on the highest quality and sustainability.

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