Press Release

Laser technology is revolutionising the paper and packaging industry

A new era of contactless digital paper processing is bringing manufacturers greater cost efficiency, custom design and sustainability

Weßling, November 08: The centuries-old paper and packaging industry is currently undergoing a profound change towards increasingly automated and digitalised production steps. The latest developments in the laser industry are tapping into fantastic new areas of application for processing printed paper products in the graphic industry, bringing more flexibility, creativity and design to paper products. With its smart, contactless laser beam deflection units, laser technology also enables more efficient processes that conserve resources, not to mention cost-efficient production even for smaller quantities for processing paper, cardboard and corrugated cardboard.

Punching, embossing and cutting machines that require regular maintenance and tool replacement are making way for highly responsive, adaptable and automated
laser processes in the packaging industry. The paper industry is in a state of major upheaval, since many production steps are becoming increasingly digitalised and interconnected. In traditional paper processing and printing procedures, the quantity of products (known as “batch sizes”) had to be high enough to remain financially lucrative. In future, companies will no longer have to limit themselves on account of the volumes they can produce. Laser technology is now so advanced that it can support many different aspects of paper production and the packaging process, at the same time as being cost-effective too. Instead of standard products, custom manufacturing in line with customer specifications can be implemented as per the market trend. RAYLASE, the laser technology provider from the Five Lakes Region near Munich, offers cost-efficient solutions for various applications that can be integrated into the paper production process, like laser cutting, marking, perforating and engraving.

Laser cutting is second to none as a processing method for paper. CO_2 high-performance lasers combined with a laser deflection unit enable high-precision contours in much the same way as a knife. Instead of being subjected to mechanical stress, the material is abruptly vaporised using a laser beam at maximum speed. “The challenge in this production step is preventing burn marks or potential discolouration caused by fumes and coordinating the laser power and the speed of the deflection unit in a particularly optimum way,” remarked Harnesh Singh, Sales & Marketing Director at RAYLASE. For larger fields, several deflection units work precisely in parallel or with one another to produce the desired cutting pattern. Since the laser beam is controlled with the utmost precision, even smaller, fine details like ornamental features, lace, letters and so on can be cut out.

Laser material processing opens up a brand-new dimension of countless design options with an individual touch for paper manufacturers. There’s never been a greater choice of possibilities. For example, when it comes to laser engraving, part of the surface is removed with the laser. In the case of two- or multi-layer grades of paper, first the top layer appears, followed by the second colour. This results in high-quality paper refinement. The laser system can be used to create the finest geometries quickly, easily and with a high level of precision. Laser engraving is particularly impressive due to its unique haptic results.

Perforating using a laser system also has many possible applications – both for further processing and for finishing classic print products. Production with a laser and deflection unit is worthwhile, especially for short runs or customised products. It makes manufacturing cardboard boxes, packaging, envelopes, stationery or folders a breeze. What’s more, laser perforation provides forgery protection on documents and labels, or is used as a separating line on admission tickets, reply letters or similar documentation.

The AXIALSCAN-II-50 and 30 deflection units from RAYLAYSE offer flexible options in this respect, even for very large work areas measuring up to several metres. Excellent process control is possible due to a smart combination of parallel deflection units and digital electronics. This is also enabled by the integration of the SP-ICE-3 control card, which provides networking of an extremely wide variety of components via Ethernet for the purposes of information exchange and real-time feedback. “The two deflection units for CO_2 lasers are an ideal addition to an existing portfolio. They are economical and can be quickly adapted to suit new requirements. They can be implemented for various sizes and different shapes and thicknesses of the paper sheets, or a wide range of packaging sizes, not to mention for large and small quantities,” emphasised Mr Singh, underlining the wide range of potential applications in the paper industry.

Innovations in laser technology are already helping e-commerce leaders to package fast-moving products. Traditional printing and copying companies are adding laser-based services to their portfolios so they can respond more flexibly to print jobs. Combining Web2Print (W2P) software services with laser technology also gives small and medium-sized companies the independence they need to individually manufacture their own paper products to suit customer requirements. Large companies specialising in paper packaging, meanwhile, are increasingly viewing the integration of laser technology as the logical next step in the modernisation process with a view to making end-to-end production both efficient and flexible.

RAYLASE always provides support as a partner throughout the entire process: “We stand by our customers during the initial laser deflection unit setup. We also ensure that the laser and the deflection units are aligned and that the machines are assembled to suit the requirements. We provide support at all levels – from the development stage to product selection, and from software interfaces to staff training,” added Mr Singh, Sales & Marketing Director, listing the services that RAYLASE provides.

One thing’s certain: laser systems are the future in the paper and packaging industry. The advantages are extensive: they increase the design possibilities and make even small volumes profitable. The fact that the laser is contactless in operation promotes longer machine running times and tool life to boot. When combined with an appropriate deflection unit, the laser is generally low maintenance. There are no more costs associated with buying or storing cutting blades. So, the amount of waste generated is reduced. The laser also helps to conserve resources in other ways. It helps the industry in its efforts to make necessary material designs easier for the consumer to separate. This reduces the environmental footprint through an environmentally conscious process cycle with a view to using the raw material wood sustainably. “Laser systems make a sustainable contribution in the fight against costly packaging that neither industry nor consumers want,” affirmed Mr Singh. So, for the paper and packaging industry, they make an additional key contribution to protecting our climate.

About RAYLASE

RAYLASE GmbH is a highly innovative, international laser company based in Wessling near Munich. Founded in 1999, the Bavarian company offers high-precision opto-mechanical components, control cards and software for the rapid deflection and modulation of laser beams for laser material processing in industrial manufacturing. With over 130 employees worldwide, the RAYLASE Group stands for innovative technology of the highest quality. Since 2007, the company has a subsidiary and its own production facility in Shenzhen, China, as well as several international representatives in the US, Italy, Japan, Korea, and Taiwan.

The laser deflection units comprise opto-mechanical scanners and digital control electronics with an intuitive software interface. These form the core of industrial laser systems and enable more flexible, economical, and precise processing of a wide variety of materials such as metal, plastic, paper, textiles and many more. Opto-mechanical deflection units also offer excellent image processing for better calibration, simple automation, and exact monitoring of a range of laser processes.

Customers come from the electronic, automotive, photovoltaic, textile and packaging industries. RAYLASE’s current focus markets are electromobility, for example, in battery production, solar wafer

production for photovoltaics in the solar industry and additive manufacturing. RAYLASE supports its customers primarily in four core applications: laser cutting, laser welding, laser surface processing and selective laser sintering or welding for additive manufacturing. In each of these areas, the company drives digital innovations by combining these with established technologies.

RAYLASE
THE POWER OF WE

www.raylase.de

Contact
Marketing: Harnesh Singh, h.singh@raylase.de, +49 8153 9999-699
Presse: Angelika Beiersdorf, communications@angelika-beiersdorf.de, +49 8193 2069266