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Maximum product quality with new laser die-cutting unit

Michael Scherhag

Some months ago, the German company Inno Tape GmbH, a market leader for supplying pressure-sensitive parts to industry, installed a new Multiconvert laser die-cutting unit from F+V Automation. In the meantime, the company has gained extensive experience with the system and according to the common motto "Think Different" it devised new solutions in cooperation with F+V. NarrowWebTech visited Inno Tape and had a close look at the Multiconvert Laser system.

The success story of Inno Tape speaks for itself. Established in 2006 with three employees, the company now employs about 100 people. Continuous growth, new production machinery and company buildings and a definitive business approach has resulted in Inno Tape taking a leading position in the field of supplying pressure-sensitive parts. The practical implementation of the "Think Different" motto already applies to dealing with their employees, showing that they take a different approach from other converting companies. Inno Tape offers free baskets of fruit, beverages and various measures for the maintenance of the health and motivation of their employees, including massages on request and well-equipped break rooms.

Individual and commonly developed solutions

To stay ahead of the competition, the company is very active in developing its own solutions, optimising products and workflows and also developing individual solutions with their suppliers.

Products like adhesive tapes, films and pressure-sensitive parts are manufactured according to customer-specific requirements. From the very beginning, Inno Tape has searched for best production processes and technologies

and integrating them into the workflow. In this regard, since 2014 Inno Tape has been in close contact with F+V Automation in order to develop and implement suitable solutions. This has resulted in customised machines for Inno Tape, combining special applications with a series of basic elements.

Until the installation of the Multiconvert laser die-cutting unit, the company employed flat-bed devices or rotary magnetic dies. However, since 2012, Inno Tape has strived to optimise production using a laser die-cutting system. This has been because of their current product portfolio and also because of the most complex and difficult to manufacture tapes and pressure-sensitive supply parts.

Tailored to customer needs

Manufacturing and finishing at Inno Tape takes place at its facility in Alfeld, Germany. This includes laser die-cutting, cutting, laminating and rewinding. The resulting products include customised adhesive tapes suitable for fixing, sealing, conducting and insulating, functional films and sealing systems. All these products are tailored according to specific customer needs. Inno Tape puts special emphasis on an individual customer advisory service provided by application and process engineers, and also the steady development and optimisation of products in combination with flexibility, fast response and short production times. The company provides regular training and further development qualification of its employees. This relates also to the new laser die-cutting unit, as they trained the operator over several months to have him ready for effectively using the unit immediately after the installation. Now, after several months of operating the machine, it turns out that such intense preparation paid off very well in terms of motivation and product quality. Due to this experience, other employees will also be trained and it is intended to start two-shift production at the end of 2016.

Left: A view into the laser die-cutting unit during the laser engraving of a logotype

Right: The most diverse adhesive tapes are key products of Inno Tape



As far as the cooperation with F+V Automation is concerned, the similar philosophy of both company's turned out to be another most important element for their mutual success. The same relationship Inno Tape cultivates with its customers they also expect from their suppliers. According to the company, they found an ideal partner in F+V Automation as they share almost similar views. This has resulted in the development of a highly flexible platform system. Thomas Weiser, managing director for Inno Tape remarks: "Each machine part is a fully-fledged machine and the quality of each detail must stand for itself".

Modular and flexible configuration

The Multiconvert Laser supplied by F+V Automation is a reel-to-reel laser converting unit with an un- and rewind unit. Module 1 is responsible for the manufacturing of the material composites (e.g. corona pre-treatment, laminating), module 2 consists of the laser die-cutting device (e.g. cutting on the fly, 3D galvo scanner, 300 W performance) and module 3 is a converting unit (e.g. rotary die-cutting, slitting, inspecting, inkjet imprinting, rewinding). The unit offers some special features such as a combination of laser slitting and register accurate rotary die-cutting, matrix removal

and the processing of materials for the supply of pressure-sensitive parts manufactured using adhesive tapes provided by well-known manufacturers like 3M and tesa.

The modularly configured Multiconvert Laser is available in various working widths from 250 mm to 550 mm (10" to 22") and has a maximum speed of 80 m/min (262 fpm). The web tension ranges between 10 and 500 N/m. The unit is designed for fast and tool-less make-ready with minimum waste. In addition, it is provided with no format-dependent register control, job data storage and has the ability to be maintained remotely.

A view into the future

According to Inno Tape's managing director Thomas Weiser, extensive planning, regular training and further qualification of the operators and the intense cooperation with F+V Automation has really payed off. Apart from some minor initial problems quickly fixed by F+V Automation, the Multiconvert Laser works smoothly and has proven its worth in practice impressively. Already after a short time, the most complex customers' projects have been accomplished. Therefore, it is not surprising, that new projects in the field of die-cutting are already in the pipeline and that the cooperation with F+V Automation will be further intensified.

Apart from adhesive tapes, Inno Tape manufactures pressure-sensitive parts for many different applications e.g. the automotive industry



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“Think Different”

An interview with Rainer Feldbaum, managing director for F+V Automation

Is the Multiconvert Laser system also suitable for the manufacturing of folding boxes and what can be the maximum grammage of the carton?

Rainer Feldbaum: Up to now, there are no references for the Multiconvert Laser system by any industrial scale manufacturer of folding boxes. However, in general this is rather a question of the required performance capability of the laser source depending on the grammage of the respective carton and the required cutting speed. Basically, F+V Automation is active in the field of folding boxes and conducts appropriate tests in our own R&D department.

Unlike the slitting process, where the laser beam penetrates the substrate, creasing requires compression. What technical solution has F+V Automation developed to meet this requirement?

Rainer Feldbaum: The answer to this question is certainly of interest not only for your readers but also for our competitors. Creasing and the associated compression of the substrate results in a weakening of it to achieve a clean folding edge. Technically this substrate weakening can be achieved with a laser beam. However, the key consideration is the visual quality requirement, as residues of smoke and burning may occur at the folding edges.

How does the break off of the blanks from the carton substrate

take place and is there also the opportunity to die-cut windows or other small openings?

Rainer Feldbaum: The typical matrix removal subsequent to the die-cutting process can be applied. For the cut blanks of folding boxes a suitable conveyor belt is probably the best solution. The fixation of the blanks is performed using vacuum or static systems.

The laser die-cutting process is particularly well suited for windows and other small openings. This is due to the fact, that the substrate is burned away which eases matrix removal compared to analogue die-cutting.

As the die-cutting of the outer contour is performed while the web is running, the cutting speed is of significant importance as this effectively controls the system's KW performance capacity. What are the respective parameters of the Multiconvert Laser system?

Rainer Feldbaum: As the performance capacity also effects the purchase price of the system, it is individually determined by the duties to be performed. However, the systems installed so far are within a performance range of 200KW to 350 KW.

Is there any motto at F+V Automation with respect to the converting tasks or conceptual solutions?

Rainer Feldbaum: “Think Different” is certainly the motto, as any kind of pigeonhole thinking is most inappropriate for any compa-



ny active in the field of specialized mechanical engineering. In this context F+V Automation duly considers the following principles:

- Winning customer confidence with progressive ideas and professional expertise
- Strengthening customer confidence with products at the highest quality level
- Fostering customer confidence with fast and reliable service
- Gaining and keeping a competitive edge through innovations
- Fostering employee skills through motivation
- Regarding challenges as a winning perspective

Mr Feldbaum, thank you very much for this revealing interview.

Left: The new Multiconvert Laser system provided by F+V Automation comprises three modules: one for the manufacturing of material composites, one for the laser die-cutting device and one for the converting module.

Right: View of the first module for the manufacturing of material composites provided with devices for corona pre-treatment, laminating and further options.

(Left to right) Rainer Feldbaum, managing director for F+V Automation with Thomas Weiser, managing director for Inno Tape, in front of the new Multiconvert Laser system

