

After having successfully installed Elitron cutting automation at three European production sites, the European corrugated giant installs another fully automated cutting system at their Danish headquarters.

DS Smith digitalizes display die-cutting with Elitron's Kombo TAV-R

Translated from an article written by Lorenzo Villa, Italia Publishers



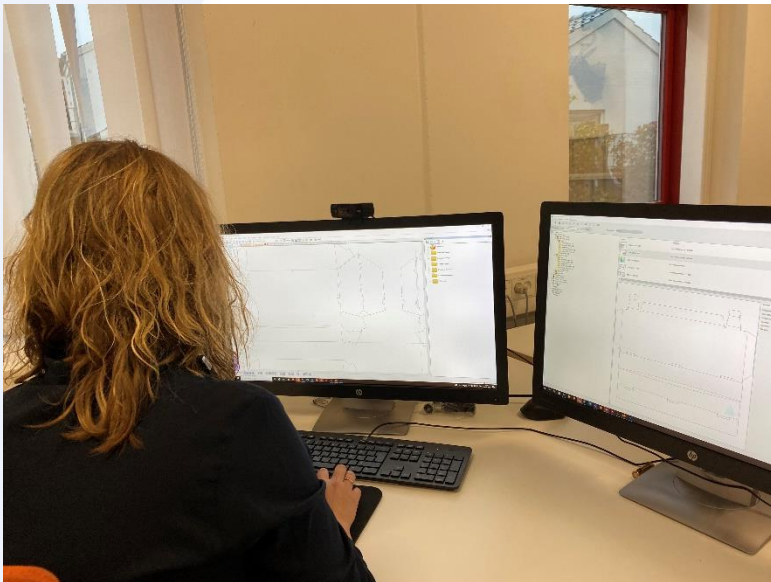
The packaging sector continues to grow and reconfirms itself as one of the most globalized, dynamic and promising segments of our industry. The corrugated sector, however, experiences like others the reduction of delivery times, print runs and marginality, with a growing demand for customization. This requires independent box factories and large groups to react quickly, and to adopt innovative production processes and technologies to create prototypes, samples, and for production runs too. For DS Smith, one of the world's leading corrugated groups since 1940, digital technology is crucial to face the challenges of the future.

An international brand with a strong, local roots

With over 30,000 employees in 34 countries, DS Smith can count on 196 production units overall, some more transversal and others verticalized to specific products. The group consists of the Packaging, Recycling and Paper business areas. In Denmark, DS Smith operates

with a team of 670 employees, located between the Grenaa headquarters and the 4 production and business units. With a lean and widespread layout, DS Smith Denmark guarantees its customers an effective local service. In addition to traditional channels, the company also has an e-commerce division for packaging and accessories. The Vejle plant, in the heart of the Scandinavian country, is dedicated to the full-cycle production of displays and materials for point of sale, from design to prepress, up to printing, die-cutting and gluing. Here, in June 2021, DS Smith installed an Elitron Kombo TAV-R digital die cutting line.

A fleet of top technologies for a varied clientele and their needs



DS Smith Denmark's customers operate in a variety of industries, from food & beverage, electrical equipment to building materials. Heterogeneous customers, with diverse converting requirements to create a plethora of different types of boxes and displays. To carry out this process, in Vejle there are two Koenig & Bauer 1,620x1,200 mm offset printing machines, HD flexo-printing units, lamination lines, platen and semi-rotary dies, and some

folder-glueers. For faster orders, and with a higher degree of customization, the company also makes use of the digital printing units installed at the DS Smith offices in Sweden and Finland, and also uses some local subcontractors.

«Customer needs change rapidly, and demand for just-in-time customization and processing has never been so high», explains Karsten Nielsen, Senior Process Engineer of DS Smith Packaging Denmark. «The new priorities are time-to-market and competitive costs, but also sustainability and recyclability».

To comply with the most stringent customer requests, DS Smith Denmark pursues the constant reduction of its CO2 emissions and is FSC certified. The company also obtained the ISO 50001 certification for energy management and ISO 9001:2015 for quality management. On the food safety front, it adheres to the ISO 22000 and FSCC 22000 certifications. In 2010, to create prototypes and pre-series displays more efficiently, DS Smith Denmark created a digital design and production department at the Vejle site, equipped with Esko ArtiosCAD software stations and digital cutting and creasing systems.

The crucial role of digital printing and finishing

To meet the explosive demand for smaller quantity runs over the past decade, the company invested in new digital cutting systems. At the same time, it improved the analogue die-cutting lines, and speeded up the internal production of cutting dies, reducing the production time to 48-72 hours. An impressive result, but not enough to meet demand.

«We scaled digital production as much as possible, and made analogue production more efficient, but die-cutting remained a bottleneck we had to overcome», explains Nielsen. «Therefore, we decided to introduce a faster, more automated and more reliable digital cutting technology».

At the end of 2020, the DS Smith Denmark team drafted a detailed project, complete with business case, savings targets, and a detailed description of the work required. The company analysed the proposals from the main suppliers and confronted internally during the technical roundtable with other branches of the group, where challenges



and best practices are periodically shared. This is when the full potential of Elitron's Kombo TAV system emerged, as it has already been successfully implemented at numerous DS Smith sites.

«We tested everything on the market, visited trade fairs and read magazines», explains Nielsen. «But the testimony of our colleagues was decisive. After all, they had already made the mistakes and experienced the benefits of multiple printing and cutting systems».

The choice of Kombo TAV-R

After some demonstrations, and a visit to the Elitron headquarters, DS Smith Denmark starts an in-depth analysis of Kombo TAV-R, and the R3 configuration, equipped with acetal belts for feeding and transporting pallets upstream and downstream of the machine. To verify the actual economic benefit and the depreciation model, DS Smith also carries out an analysis of the consumption of traditional cutting blades on hundreds of die-cut paths, and subjects the Kombo TAV-R to intensive processing cycles.

«One of our concerns was the strength and quality of the creasing. So, we did countless tests, reproducing many different types of packaging and displays», emphasizes Nielsen. «Finally, we submitted the results to our customers, who approved and accepted the high quality of digital cutting».

After formalizing the acquisition, at the same time as testing the Kombo TAV-R, DS Smith Denmark sent its operators to Elitron for a period of operator training, followed by a week of further coaching with Elitron technicians following the installation at site.



The benefits of automation

Thanks to its working format, 3200x2200 mm, the patented AiroPanel unloading technology, and the patented Seeker System camera system, Kombo TAV-R allows you to automatically load multiple sheets on the cutting table, detect their register marks, and perform the cutting with maximum precision, without operator intervention. At the end of the process, the entire cut sheet, without any bridging nicks, is neatly stacked on the

pallet, and is ready for immediate, easy waste removal. To facilitate quality control and just-in-time deliveries, Kombo TAV-R can release partial batches or single cut sheets, without interrupting the production process.

Although Kombo TAV-R R3 is set up to operate in fully automated factories, DS Smith Denmark uses it as a stand-alone cutting unit. In the medium term, however, the company aims to follow the example of other group sites, where Kombo-TAV-R is interconnected to converting machines and corrugators. Six months after installation, the Elitron system works on one shift, with a single operator, but by the end of 2021 the equipment will be used for 24/7 processing.



«The more we get to know the Kombo TAV-R, and appreciate its reliability, the more trust we have», continues Nielsen. «To the point that we are already planning to move the analogue die-cutting processes to digital, alternating shifts with an operator and shifts without supervision».



Ready for the challenges of the future

DS Smith Denmark's goal is to fully maximize the capacity of Kombo TAV-R by mid-2022, and then to evaluate the installation of a second unit. To meet the demand for short runs, the company is also considering the introduction of a digital printer with automatic loading and unloading of corrugated sheets.

Karsten Nielsen
Senior Process Engineer,
DS Smith Denmark



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