

Johnson Controls Redesigns Its Production Strategy with Lectra

Lectra helps the world's leading automotive supplier prepare its cutting room for the future of trim cover production.

THE CHALLENGE

Johnson Controls needed to increase production flexibility in order to respond to growing demands for a wider variety of automotive interior options.

LECTRA'S RESPONSE

Lectra proposed VectorAuto MX9, the predecessor to VectorAuto iX9, a high-ply fabric cutting solution specifically designed to handle most types of automotive material. Lectra accompanied Johnson Controls throughout the transition process, from die presses to automated cutting, to ensure swift and effective implementation of its solution.

LECTRA SOLUTIONS

Vector



THE CHALLENGE

For over 80 years, Johnson Controls has led the automotive trim cover industry by providing seating systems that differentiate vehicles and offer customers what they want most—style, comfort, and safety. However, as the trend in automotive interior personalization became more mainstream, the innovative automotive supplier recognized that producing the same volume of car sets as they had in the past while managing the proliferation of options for interiors—different fabrics, styles, and features—would be impossible with the die press system they had been using.

Long changeover times, the cost of changing die boards midway through a program, and the inability to change the pattern in a die severely limited Johnson Controls' production flexibility. In addition, high levels of fabric waste caused by the large buffer between pieces and end loss due to the fixed length of the die board, increased production costs. To improve its competitive position in a changing market and win new business required finding a solution that would allow them to deliver a wider variety of options, meet tight production schedules and reduce fabric costs. Johnson Controls' executive team decided to undertake a highly strategic project to transform their fabric-cutting value chain by replacing all the die presses in their European plants with automated computer numerical control (CNC) cutting equipment.

LECTRA'S VALUE PROPOSITION

Johnson Controls evaluated multiple technology providers for the cutting room transformation project but Lectra was the only candidate that combined the leading-edge technology, cutting room expertise, and global support services to effectively deliver a project of this breadth.

“Being a flexible supplier means we can more easily win contracts. With the Vector fabric-cutting solutions we have today, we can easily handle all of the different options that were not available 20 years ago.”

Willy van Looy
Global Director,
Advanced Manufacturing
Engineering,
Cut & Sew Operations

As early adopters of VectorAuto MX9®, Johnson Controls was already familiar with the performance and productivity of Lectra's high-ply, automotive fabric cutting equipment. Breakthrough technology integrated into the MX9 enabled the company to cut more plies of material faster and with a consistently high level of quality. Its high-performance cutting head and Eclipse technology, which provides the ability to cut during conveyor advance, guaranteed even higher throughput. Features such as a built-in blade deviation controller, automatic blade path correction, and optimized cutting of tangent pieces ensured precision cutting and repeatability.

To meet the goal of obtaining the highest level of performance, Johnson Controls decided to also equip their cutting rooms with VectorAuto iX9®, Lectra's latest top-of-the-line fabric cutting solution, upon its launch in 2012. The iX9 expands upon the capabilities of the MX9; its high-performance cutting head and the ability to cut during conveyer advance guarantee even higher throughput. Lean-compliant poka yoke and visual management systems, such as automatic drill diameter identification and video-assisted spread position control, further maximize production output and efficiency.

However, the management team at Johnson Controls was not only looking for a flexible cutting solution but also a flexible company that would understand their unique challenges, listen to their input, and work with them to find solutions for success. “The high level of trust between both companies was one of the main reasons we chose Lectra,” says Willy van Looy, Global Director, Advanced Manufacturing Engineering, Cut & Sew Operations, Johnson Controls. “The open and transparent collaboration between our teams fostered a sharing of expertise, experience, and best practices that was instrumental in the success of this project.”

A third factor in Johnson Controls' choice was Lectra's financial stability. “A transformation project of this size requires a significant investment in time and money. We needed a stable partner that we knew would be with us over the long term and would have the financial capability to scale-up the production when needed,” continues Willy.

WORKING TOGETHER TO BRING ABOUT CHANGE

Prior to embarking upon this project, 90-95% of the cutting done in Johnson Controls' European plants was done with die presses; CNC equipment was only used for low-volume cutting, prototypes and recuts. Implementing a change on this scale entails more than putting an automated cutter in the spot where a die press once stood: “You need to have your planning solution and your CAD team prepared, because you have more nestings and markers to create. Also, quality control is completely different. You need to think differently about changes. All these elements need to be prearranged before introducing the systems,” explains Willy van Looy.

Over the 10-year span of this project, Lectra teams worked closely with Johnson Controls to ease the transition and ensure they obtained the optimum performance from their Vector cutting room. “From the beginning, with the pilot plant in Česka Lípa (Czech Republic), and later on during the rollout to all Johnson Controls' Cut & Sew plants in Europe, we had significant support from Lectra's development, maintenance and service teams. Lectra has always been there to support us, ensuring that we achieve our productivity requirements and maintain excellent cut quality,” adds Guido Gerits, Senior Manager, Advanced Manufacturing Engineering, Johnson Controls Cut & Sew Operations Europe.

Support services are especially important when changing from an invariable mechanical process, like die cutting, to a technology-based one. During the early stages of implementation, when Johnson Controls was still adjusting to the new production methods, Lectra experts provided guidance in setting cutting standards to achieve optimal equipment performance and the best cut quality with a variety of automotive materials, explained how the equipment would react under certain settings, and trained teams on maintenance support.

For Lectra, input from Johnson Controls was invaluable in helping it continue enhancing Vector's performance. Developing features and functions that responded to the needs of a premium supplier like Johnson Controls gave Lectra deeper insight into the real-world requirements of automotive suppliers and the evolution of their manufacturing needs.

JOHNSON CONTROLS ACHIEVES STRATEGIC VISION

With the help of Lectra's expertise and technology, Johnson Controls now has a more agile cutting platform that helps them to maintain their position as a market leader and supports their worldwide business growth strategy. As the complexity of car seat manufacturing continues to increase, with the introduction of new materials and material embellishments, Johnson Controls can efficiently respond to customer needs and requests, change quickly from one platform to another, from one product to another, manage product change processes more accurately and easily adapt to customers' planning processes.

"Being a flexible supplier means we can more easily win contracts. With the Vector fabric-cutting solutions we have today, we can easily go through all of the different options that weren't available 20 years ago," says Willy.

By adopting Lectra's best-in-class technology, Johnson Controls has protected their position as a market-driving force, able to excel in an evolving industry. The ability to create longer, more efficient nestings and cut with minimal space between pieces gives the company an edge in preserving margins, while providing competitive pricing to customers and meeting the automotive industry's exacting quality standards.

Beyond increasing production flexibility, equipping Johnson Controls' Cut & Sew plants exclusively with VectorAuto MP9, MX9 and now iX9 for high ply fabric cutting solutions, facilitates process optimization across all sites, an essential element of the company's competitive strategy. A uniform equipment base allows Johnson Controls to shorten the learning curve, systematically measure and evaluate key performance indicators, and standardize best practices. "If plant A is improving on something, we can roll it out to the other plants. You can share information—the same systems, the same problems, the same benefits," says Guido. In the fast-changing automotive industry, sharing knowledge and accelerating roll-out of changes is invaluable to better manage cutting room performance and achieve the full benefits of automation.

As production cycles become shorter, the speed and production efficiency Johnson Controls has attained with Vector enables them to continue providing just-in-time manufacturing services to their customers; the increased production capacity means they can continue to attract new business.

A BRIGHT FUTURE

Following the success of this project in Europe, Johnson Controls is seeking to replicate these results globally. Plants in Asia will also benefit from the combination of advanced technology, cutting room expertise, and project methodology that was instrumental in improving the European plants' competitiveness. Johnson Controls currently has more than 180 Vectors installed in plants around the world.

As the automotive market continues changing and competition intensifies, being equipped with Lectra's continually evolving technology provides Johnson Controls with the certainty that the performance of their cutting room will consistently allow them to surmount current and future challenges.

"Johnson Controls has always been an industry pioneer and this transformation project is further proof of that. We are honored they chose Lectra to support them in this initiative and we look forward to continuing to provide them with solutions that always keep them ahead of the market," says Javier Garcia, Director, Strategic Accounts, Lectra.

"Johnson Controls and Lectra make a good team; our collaboration brought both companies to a higher level. I think we did a great job," concludes Willy.

About Johnson Controls

Johnson Controls is a global diversified technology and industrial leader serving customers in more than 150 countries. The company's 170,000 employees create quality products, services and solutions to optimize energy and operational efficiencies of buildings; lead-acid automotive batteries and advanced batteries for hybrid and electric vehicles; and interior systems for automobiles. Johnson Controls' commitment to sustainability dates back to its roots in 1885, with the invention of the first electric room thermostat. Through its growth strategies and by increasing market share, Johnson Controls is committed to delivering value to shareholders and making its customers successful.



About Lectra

Lectra is the world leader in integrated technology solutions that automate, streamline and accelerate product design, development and manufacturing processes for industries using soft materials. Lectra develops the most advanced specialized software and cutting systems and provides associated services to a broad array of markets including fashion (apparel, accessories, footwear), automotive (car seats and interiors, airbags), furniture, as well as a wide variety of other market sectors, such as aeronautical and marine industries, wind power and personal protective equipment. Lectra serves 23,000 customers in more than 100 countries with 1,500 employees. The company is listed on Euronext.

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