

TYPE  
CASE  
STUDY

INDUSTRY  
TEXTILE  
MANUFACTURING

LOCATION  
NORTH  
CAROLINA

# PRECISION, PERFORMANCE, AND QUALITY: CAROLINA NONWOVENS LEVELS UP WITH PLEX MES

Nonwovens manufacturer benefits from digitized and unified platform.

## CHALLENGE

- Legacy ERP and an outdated MRP system operated independently, requiring constant manual data transfers.
- Frequent month-end surprises due to inconsistent data and limited visibility into material yield losses.
- Inability to trace scrap or identify root causes, with only high-level, global scrap numbers available
- Lack of real-time production insights, relying instead on Excel sheets and manual tracking.
- Paper-based quality check sheets that were inconsistent, hard to track, and disconnected from production workflows.

## SOLUTION

- Plex Manufacturing Execution System (MES)
- Plex Quality Management System (QMS)



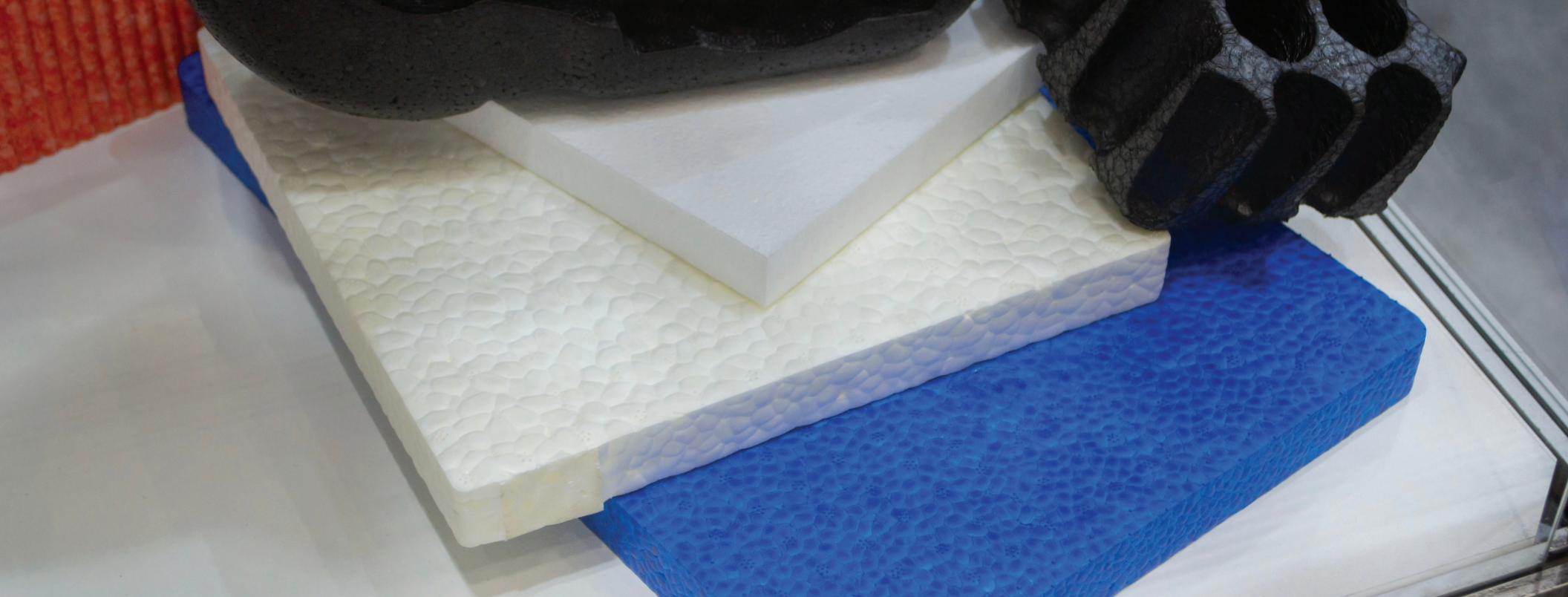
## RESULTS

- Deployed Plex in only 5 months
- Improved Overall Equipment Effectiveness (OEE) by 10% at North Carolina-based facility
- Identified a manufacturing line that produced 5 times more scrap than the other, enabling targeted corrective action.
- Expanded scheduling visibility to approximately 10 days of production load, improving planning accuracy.
- Improved accuracy and clarity of profit and loss.



In 2012, National Spinning Co., Inc, acquired Carolina Nonwovens. As a textile manufacturer since the early part of the 20th century, producing dyed and greige short staple and long staple spun yarns, National Spinning Co. understands fiber. Operating five spinning and dyeing plants in the state of North Carolina, the Carolina Nonwovens management team brings comprehensive expertise to the nonwoven business. Under this leadership, the nonwoven business has grown and expanded in many markets with a broader range of products.

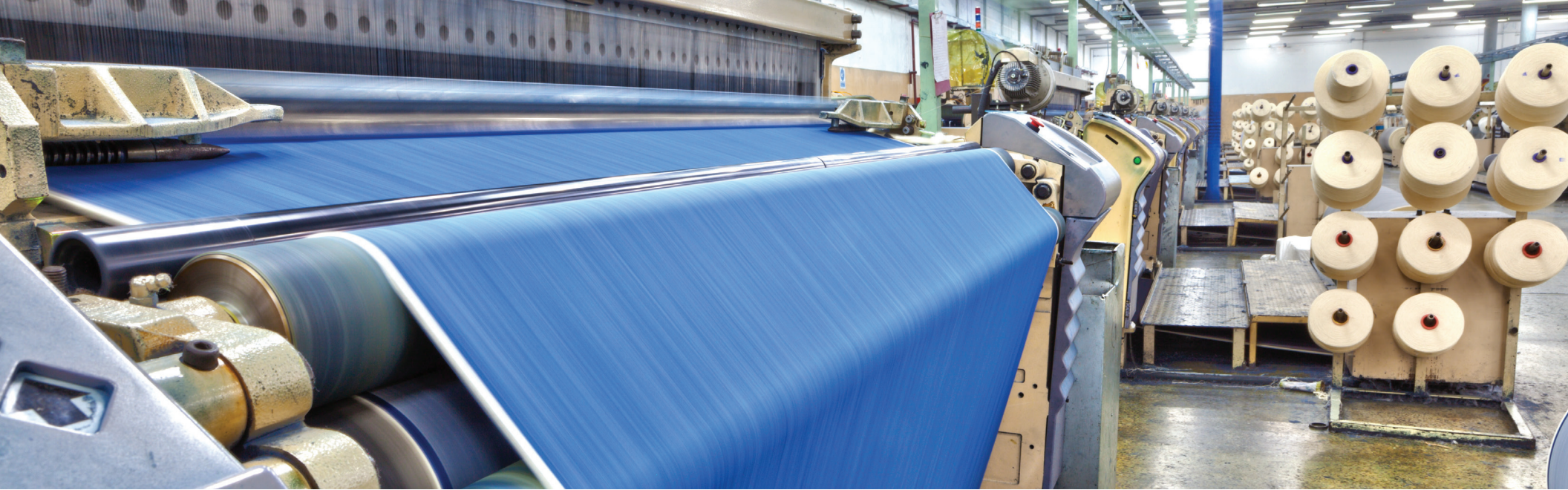
Carolina Nonwovens is a leading manufacturer of fiber pads used for thermal and acoustic insulation across industries such as automotive, appliances, bedding, construction, and cold-chain packaging. With two manufacturing facilities, the company produces high-quality nonwoven materials that support a wide range of industrial applications. As demand grew, the customer sought a more modern, integrated way to manage operations and maintain efficiency.



## **OUTDATED SYSTEM, GROWING DEMAND**

Before partnering with Rockwell Automation, Carolina Nonwovens relied on an ERP system implemented in 1999 and a separate MRP system. These systems operated independently, forcing teams to manually transfer data between them and creating frequent discrepancies at month-end. Material yield losses were difficult to trace, and teams often chased the wrong root causes because the systems lacked the visibility needed to pinpoint operational issues. This created a recurring cycle of surprises during financial close and limited the organization's ability to improve performance.

Carolina Nonwovens needed a unified platform capable of seamlessly managing accounting, inventory, production, and material planning. The legacy systems could not provide real-time insights or support the level of operational clarity required for modern manufacturing. To continue scaling and improving efficiency, the customer sought a solution that aligned more naturally with their workflows and could deliver accurate, actionable data across the business.



## A FLEXIBLE SOLUTION

Caroliona Nonwovens selected [Plex MES](#), inclusive of [Plex QMS](#), after hearing strong endorsements from two of their own customers who were already using it. During their evaluation, Plex stood out as the most intuitive platform, and it aligned with their operational needs. The system offered integrated data management, real-time visibility, and the ability to consolidate all core functions into a single platform.

Implementation began in late April 2024, and Carolina Nonwovens went live just over five months later—without running parallel systems. They shut down their legacy system one month and fully transitioned to Plex the next. This rapid deployment was made

possible by dedicating internal resources exclusively to the project, ensuring focus and continuity throughout the implementation process. The initial Plex deployment was supported by Plex System Integrator, [Cumulus Consulting LLC](#), who has continued to support the Carolina Nonwovens post-implementation.

Once deployed, Plex became central to daily operations. Scheduling, material planning, job dispatching, operator communication, and quality data entry all moved into a unified environment. Teams could view current jobs, prepare for upcoming product changes, manage raw material needs, and generate Certificates of Analysis directly within the system. Plex's flexible interface helped employees adopt the platform quickly, enabling the customer to begin optimizing operations almost immediately.



## IMPROVEMENTS POWERING RESILIENCY

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### OPERATIONAL IMPROVEMENTS

With Plex in place, Carolina Nonwovens gained a level of operational clarity that had never been possible with their legacy systems. Instead of relying on high-level indicators and manual data transfers, the team now has a single source of truth for production, inventory, and financial information. Scrap tracking, once limited to a single global weekly number, is now available at the individual-product level, enabling the team to pinpoint where losses occur and why. This visibility also revealed significant differences between manufacturing lines—one line was producing five times more

scrap than the other—allowing the team to take targeted corrective action. Real-time production rates and product-specific efficiency metrics replaced manual Excel tracking, and long-term trend analysis became effortless, helping the team identify which products were improving or declining over time. Inventory visibility improved dramatically, giving teams a clear view of on-hand materials, work-in-process, and upcoming production needs. Enhanced scheduling capabilities now allow the team to understand backlog volume and forecast roughly ten days of production load, making it easier to plan new programs and manage product flow throughout the plant.



## **STANDARDIZED QUALITY MANAGEMENT**

Plex QMS also transformed the company's approach to quality management. Digital workflows and control plans by Proportional-Integral-Derivative (PID) replaced the paper check sheets that once traveled with orders, ensuring that operators cannot begin production until all required checks are completed within the system. This shift not only standardized quality processes but also strengthened compliance and accountability across the plant. Traceability improved significantly as well; the team can now identify the exact vendor bale used in any product with confidence, supported by precise timestamps showing when each bale was consumed—accurate to the hour rather than the shift. Plex QMS quickly became an integral part of daily operations, and its impact was evident almost immediately. Within one month of

implementation, auditors noted visible improvements and highlighted the system's potential to drive even greater quality gains. The company's ISO audit at the new Ohio facility was seamless, and auditors specifically praised how effectively Plex was being used to support the QMS.

## **BUSINESS-WIDE IMPACT**

With Plex in place, Carolina Nonwovens gained unprecedented visibility into their operations. The older facility in Maiden, North Carolina saw OEE rise from the low 60s to the high 70s, driven by the ability to analyze performance by day, shift, and lot. Teams could finally identify the true causes of downtime or yield loss and take targeted action to improve production outcomes.



Financial clarity also improved dramatically. Instead of waiting until the end of the period to uncover discrepancies, Carolina Nonwovens now has high-accuracy insight into performance before closing the books. The organization's understanding of its profit and loss and operational health has "quadrupled," enabling more confident decision-making and continuous improvement across the business.

Rockwell Automation is proud to support Carolina Nonwovens as they modernize their operations and strengthen their competitive edge. The company's success demonstrates the power of an elastic MES powering the core of a manufacturer's daily operations.

## ABOUT PLEX

Plex, by Rockwell Automation, is a leader in cloud-delivered smart manufacturing solutions, empowering the world's manufacturers to make awesome products. Our platform gives manufacturers the ability to connect, automate, track, and analyze every aspect of their business to drive transformation. The Plex Smart Manufacturing Platform™ includes solutions for manufacturing execution (MES), ERP, quality, supply

chain planning and management, asset performance management, production monitoring, process automation and analytics to connect people, systems, machines and supply chains, enabling them to lead with precision, efficiency and agility. To learn more, visit [www.plex.com](http://www.plex.com)