

Condition Monitoring in Nonwoven Manufacturing

INTRODUCTION

Unplanned downtime can significantly impact production schedules and pose serious safety risks. In the nonwoven production industry, excessive heat generated during fiber processing presents a major hazard. Thermal events can cause significant unplanned downtime, material loss, and personnel injuries.

To overcome these risks, a leading nonwoven manufacturer invested in an IIoT-driven machine health monitoring solution to improve visibility, gain early warnings, and reduce reliance on reactive maintenance

PROBLEM

The manufacturer faced a recurring problem: excessive heat from complex fiber processing machinery. Without proper monitoring, this heat buildup led to:

- Thermal events that disrupted production.
- Costly material losses.
- Increased risks to worker safety.

They needed a solution that could continuously monitor equipment health and identify anomalies before they escalated into downtime events.



Excessive heat generated during fiber processing poses a significant risk of thermal events, resulting in unplanned downtime and potential injuries to personnel

SOLUTION

Through a trusted distributor, the manufacturer discovered the GraceSense Machine Health Monitoring Solution.



• **Wireless & Wired**

Sensors: Installed to monitor critical assets and capture real-time temperature data without complex wiring.

- **Cloud-Based Maintenance Hub:** Simplified system integration and provided a central platform for health monitoring.

- **Quick Deployment:** Easy installation meant the system was operational quickly, minimizing disruption.

- **Automated Alerts:** Maintenance teams received SMS/email notifications with actionable remediation instructions whenever sensor values moved out of tolerance

INTEGRATION & PERFORMANCE

The GraceSense™ Machine Health Monitoring Solution proved highly effective:

- Advanced warnings of temperature anomalies enabled teams to act before thermal events occurred.
- Remote condition monitoring reduced the burden of manual inspections.

- Built-in analytics provided deeper insights into equipment behavior, helping staff prioritize maintenance efforts

RESULT

After implementation, the manufacturer achieved significant improvements:

- Thermal events are prevented before causing downtime.
- Reduced unplanned downtime across production lines.
- Material losses minimized through proactive intervention.
- Improved efficiency, reliability, and workplace safety.

The success of this deployment prompted the parent company to consider rolling out GraceSense at other facilities.



CONCLUSION

By adopting an IIoT-enabled monitoring solution, the nonwoven manufacturer gained real-time insights into the condition of its equipment and the ability to take corrective action before catastrophic events occurred.

The GraceSense Machine Health Monitoring Solution helped revolutionize their operations, making production more efficient, reliable, and safe. This case demonstrates how forward-thinking manufacturers can leverage IIoT technology to minimize downtime, protect their workforce, and implement more efficient maintenance practices across multiple facilities.