MUELLER INNOVATIVE CUSTOM CUT SOLUTIONS

METAL DETECTION IN NEEDLED PRODUCTS

INTRODUCTION

In many industries, failure is not an option - especially when the safety or security of customers or those along the production chain are jeopardized. Often inherent risks are factored into production data as materials work their way through the manufacturing process, with varying amounts of compensation for the final product. Mueller, with its commitment to safety and creative solutions to minimizing and eliminating risks, found a solution to a problem that had long been considered "unsolvable" by the automotive fabric industry in manufacturing needled, non-woven fabrics.

THE SITUATION

Felt materials used as liners for automotive seating and other industrial uses are known as "needled nonwoven" fabrics. They are essentially fibers bound tightly together by using hundreds of needles to poke and penetrate the collection of fibers until they are unified into a single fabric. A known part of the process, however, is that the needles sometimes break during fabric manufacturing and these small, sharp points become lodged in the material. Some are too small to detect with the naked eye, but still pose a hazard to workers during downline production and to end users of the product - including car drivers and their passengers.

Suppliers could not guarantee a needle-free product, since detecting and removing broken needles is difficult, time-consuming, and not cost effective. Customers, however, demanded a safe and needle-free

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Located in Charlotte NC, Mueller is a custom fabricator of flexible materials. Mueller has served Military and Government, HVAC, Health and Safety, and Lighting markets since 1940.

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product, without the inherent risks found in needled, non-woven fabrics. Companies that use these fabrics for further production came to Mueller for an answer to this dilemma, since no manufacturer of needled, nonwoven fabric had ever offered a fabric free from this problem.

THE SOLUTION

The engineering team at Mueller dove into the task of finding a solution that would detect broken needles in the fabrics without adding an extra step, and therefore extra cost, to the manufacturing and cutting process. Their research led them to create a new process for needle detection that could be incorporated into the process of cutting the fabric without additional steps. The new process detects and marks the broken needles as material is processed and cut, so that any suspect piece could be removed before shipping and returned to the material manufacturer. This not only improved the safety of the material's end user, it did so without adding the time and resources of an extra step during the cutting or post-production process. The marked material could be sent back to the manufacturer for a refund, resulting in an extra cost saving that had been unavailable to automotive clients before Mueller created this solution.

THE OUTCOMES

The innovation in metal detection from Mueller once again differentiated them from others in the field of precision cutting. Where others in the industry could not guarantee needle-free fabrics, Mueller could and did find a solution to this issue. Post-production clients and their customers are now safer from the hazard of needles protruding from fabrics, and the clients are getting refunds for defective materials. The engineered solution reduced a known hazard that was considered unfixable by the industry at large, and did so without the need for the extra time and manpower of an extra step in the production process. Mueller once again saved its clients time and money, while finding a creative solution to a known, and previously "unsolvable," problem.



THE SITUATION

During the manufacturing of needled non-woven fabrics, needles can break and become lodged in the material.

THE SOLUTION

Mueller engineers created a new process that detects and marks broken needles as the material in processed and cut, so any suspect piece can be removed.