Automated Multiple Woven Label Attaching Machine Using Impulse Heat

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ABSTRACT

The trend of automation improves production efficiency by reducing waste and increasing productivity. The goal of this research is to figure out how to automate the cutting and temporary stitching of several woven labels that are used to attach to the back neck area of clothes. Before sending label rolls to the sewing process, the selected apparel sector must cut them and temporarily store them in order. As a model, this automated multiple-label heat stitching machine was suggested. Furthermore, the existing procedures are expensive and time-consuming. Simulation research was used to assess the performance of manpower and an automated multiple-label heat stitching machine. This machine is divided into two portions for cutting and stitching woven labels. Woven labels were cut and stitched using impulse sealer technology. To feed woven labels and move the arms of the cutter and sealer sections, two gear motors were employed. Three contactors and limit switches were used to convey signals between the cutting and stitching portions, with the signal of the limit switch being attached to the arms of the cutter and sealer parts, which are moved upward and downward in turn with the assistance of a cam inside the timing technique. To keep the heating temperature constant, the operator must control the temperature levels of the impulse sealers. This machine will be able to cut and put labels together, reducing time waste, and needless human labor. The efficiency of the process was evaluated using average outputs per week as the key performance indicator. It was manually measured at 57.6%, then it was boosted to 96 percent in the simulated system. This efficiency disparity might be due to the employees' performance within their job cycle. Finally, this machine will increase productivity in the garment industry's manufacturing department**.**

Keywords: apparel, automation, cutting, stitching, woven label