MINIMIZE THE SEAM DAMEGES OF KNIT WEAR AFTER WASHING UNDER SEWING PARAMETERS

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(Signed)

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ABSTRACT

In this thesis comprehensive study has been done to optimize the sewing parameters values to minimize the seam damage in knitwear garments in which washing is done for either aesthetic or dimensional purpose. For this purpose 108 samples were prepared by using single jersey knitted fabrics and different sewing condition. Input variable includes stitch density, machine speed and needle size. While output variables are the seam strength before and after wash to analyze the effect of input variables. Total number of samples has been divided into two groups on the basis of before and after wash and each sample has a replicate. Each type of sample has set of 4 samples.

Full factorial analysis is done on each set by using Minitab that give information about significant and non-significant factors. This analysis shows that stitch density, machine speed and needle size has significant effect on loss in seam strength of knitted garment before and after washing. In order to evaluate the effect of individual input variable and the interaction of different input variables on each response variable, analysis is done by using main effect plot, interaction plots, surface plots, analysis of variance and regression techniques.

This study shows that sewing parameters that are involved for the manufacturing of knitted garment has significant effect on seam strength of knitwear before and after washing. When to start the sewing in bulk quantities the said parameters should be kept in mind so that optimum level of strength can be achieved because after washing the sewn assembly losses some of its strength due to axial and frictional forces.