DESIGN AND DEVELOPMENT OF A MECHANISM TO IMPROVE PRODUCTIVITY IN BUGLE BEAD ATTACHING IN APPAREL INDUSTRY

Kankani Gamage Gayan Yapa

(09/8623)

M.Eng/PG Diploma in Manufacturing Systems Engineering

Department of Mechanical Engineering

University of Moratuwa

Sri Lanka

April 2015

DESIGN AND DEVELOPMENT OF A MECHANISM TO IMPROVE PRODUCTIVITY IN BUGLE BEAD ATTACHING IN APPAREL INDUSTRY

Kankani Gamage Gayan Yapa

(09/8623)

Thesis Submitted in Partial Fulfillment of the Requirements for the Degree Master of Science in Manufacturing Systems Engineering

Department of Mechanical Engineering

University of Moratuwa

Sri Lanka

April 2015

Declaration

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by any another person except where the acknowledgement is made in the text.

Also, I hereby grant to the University of Moratuwa the non-exclusive right to reproduce and distribute my thesis/dissertation, in whole or in part in print, electronic or in any other medium. I retain the rights to use this content in whole or part in future works (such as articles or books).

Signature: Date:

The above candidate has carried out research for the Masters/MPhil/PhD thesis/Dissertation under my supervision.

Signature of the supervisor: Date:

I carried out the work described in this report under the supervision of Dr. VPC Dassanayake.

Signature: Date:

Name of Student : K. G. G. Yapa

Registration No : 09/8623

Abstract

It is quite an obvious fact that as with progress of time various types of sophisticated innovative machines are developed in the world from time to time in order to mechanize and improve the enhancement of the productivity of manufacturing processes. Weaving machine and the sewing machine are very typical examples. With the evolution of advancement in technology in the textile technology in the west have moved extensively to more developing extents, as the labor cost is relatively cheaper in these regions, mechanization was not essentially a commercially viable option. Therefore the cause for the pace of development of the industry has dropped drastically.

In this particular instance Sri Lanka has arrived at a rising labor cost and therefore it's not viable to execute all the manual operations which were previously made profitable for the business. As a result of this we were forced to be pushed towards 2 options where it was to let go these operations to cheaper destinations or invent novel innovative productive processes for these operations.

This study done was with the main objective of proposing a novel productive method for bugle bead attaching mechanism, it involves a novel method of stitching, a novel needle type. This analyses the needle head influence over the final quality, selection of thread types and possible bead releasing angles.

Acknowledgement

First and foremost, I would like to express my sincere gratitude to my main research guide, Dr.V.P.C Dassanayake. I was privileged to experience a sustained enthusiastic and involved interest from his side.

Last but not least, I would like to thank for the tremendous support given from the staff of world renowned swim wear manufacturer Linea Aqua (Pvt) Ltd for giving me the opportunity to study the drawback of current bead attaching operation and allowing me to research on novel methods of bead attaching. Further I would like to express my gratitude to MAS Linea Aqua management for giving the financial support to complete the project successfully.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES