



## THREE DIMENSIONAL SEAMLESS GARMENT KNITTING ON V-BED FLAT KNITTING MACHINES

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### ABSTRACT

*Since the introduction of seamless garment knitting techniques on V-bed machines in 1995, this technology has been considered an innovative process and is currently growing in its commercial application around the world. By eliminating the cutting and sewing processes, complete garment knitting provides a variety of advantages in knitting production such as savings in cost and time, higher productivity, quick response production and other advantages.*

*The purpose of this research is to review the principles of seamless knitting on V-bed machines and to compare the machines from two major flat-knitting machine suppliers, Shima Seiki and Stoll. This paper will also discuss characteristics and applications of complete garment knitting in various products. This research was accomplished through interviews and a review of the literature. It has implications for academicians and industrial personnel who require information in three dimensional knitting technology and related machinery.*

*Keywords: Knitting, tubular, seamless, complete garment*

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### 1. INTRODUCTION

Seamless knitting technology creates one entire complete garment with minimal or no cutting and sewing process. This innovative technology eliminates post labor work, which saves production time and cost. In addition, the technology offers knitwear consumers more comfort and better fit by eliminating seams. Thus, seamless technology provides benefits to manufacturers as well as end users. Seamless knitting technology has entered the mainstream in the knitwear market.

Through this research, principles of seamless knitting techniques are discussed, and two major suppliers for V-bed machines, Shima Seiki and Stoll, and machine characteristics will be introduced. In addition, advantages and disadvantages of this type of production are revealed. In order to understand the seamless knitting technology, it is important to review the fundamentals of the knitting process. By a review of the evolution of the knitting process, an explanation of knitting methods, and the description of knitting machines' characteristics, the distinctiveness of seamless knitting will be better understood.