

**STUDY OF LOOP FORMATION PROCESS ON 1×1 V-BED RIB KNITTING
MACHINE PART1: A MATHEMATICAL MODEL FOR LOOP LENGTH**

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ABSTRACT

The mathematical model was proposed in order to determine the Loop length of a V-bed rib knitting machine based on two dimensional coordinates of knitting zone. Those were obtained by stitch cam profile equations. The final configuration of loop length was divided into 17 segments and each segment is given by an equation. The rib Loop length depends up on three variables i.e yarn input tension, cam setting, and takedown were given included in the expression. In this model variables like wrap angles, depth of needles and distance between cast-off loops are considered and these variables ultimately effect the loop length calculated from the model. A computer program has also been generated in JAVA to determine the theoretical loop length of V-bed flat knitting machine from the mathematical model proposed.

KEYWORDS: Yarn Input Tension, Cam Setting, Takedown Load, Loop Length, Needle Bed Verges, Wrap Angles, Depth of Stitch Cam, and Loop Arm Configuration