

Analysis of Roll-Forming for High-Density Wire of Reed

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Abstract : In the textile-weaving machine, the reed is the core component to separate thousands of strands of yarn and to produce the fabric in a continuous high-speed movement. In addition, the reed affects the quality of the fiber. Therefore, the wire forming analysis of the main raw materials of the reed needs to be considered. Roll-forming is a key technology among the manufacturing process of reed wire using textile machine. A simulation of roll-forming line in accordance with the reduction rate is performed using LS-DYNA. The upper roller, fixed roller and reed wire are modeled by finite element. The roller is set to be rigid body and the wire of SUS430 is set to be flexible body. We predict the variation of the cross-sectional shape of the wire depending on the reduction ratio.

Keywords : textile machine, reed, rolling, reduction ratio, wire

Conference Title : ICMSE 2016 : International Conference on Mechanical and Systems Engineering

Conference Location : San Francisco, United States

Conference Dates : June 09-10, 2016