



Have you heard about wire?

Monitoring of the wire drawing process

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Abstract

Wire made from metal is a fundamental component found in almost every complex product, ranging from a simple pen to a spacecraft. It is used to manufacture nails, screws, springs, rivets, cables, welding electrodes, and numerous other items that surround us daily.

In an era characterized by increased environmental concerns and the pressing need for the industry to become more sustainable, process monitoring has emerged as a key instrument for strengthening the sustainability improvements of diverse industries and operations. Many industries have transitioned into the realm of Industry 4.0, entering an era of digital transformation and data-driven decision-making. However, the production of steel wire has fallen behind. The wire drawing process has been performed in a similar manner for the last century and the production machines generally lack advanced monitoring systems. To catch up, there is a great need to digitize the wire drawing process and that is the focus of this thesis, *Monitoring of the wire drawing process*.

In this thesis several different methods to monitor the wire drawing process are developed and evaluated, resulting in a process monitoring system for the wire drawing process.

Keywords: Wire drawing, process monitoring, condition monitoring, drawing force, performance monitoring