

Improving the performance of rolling printing machine by monitoring and analyzing mechatronics systems

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Abstract:

The research is directed towards the work of modification and development of the poster printing machines that operate with Inkjet by increasing the speed of the poster printing machine without prejudice to the required print quality, which is the main factor in the market. Because the quality of printing is the basis for the customer's drive and speed is an important factor for the printing organization in order to save time and provide the largest quantity of production with the highest quality, and through it, it will return to the printing establishment by several factors, namely: Save time by producing the largest quantity in the least time, Providing manpower for the printing establishment, Providing the additional requirements to save electricity and other factors. The purpose of this analysis effect of pressure inside the ink tanks on increasing the print accuracy (print quality) with the printer head steady. , Also to find what is the permissible critical range for increasing the pressure that will increase the speed of printing with permissible accuracy this phenomenon will be validated by Mathematical Model, Coupling of Nozzle Dynamics and Droplet Formation, prediction by CFD modelling and Influence Of Pressure And Media Speed On Printing Quality. It is possible to increase the production process for banner printing by fixing the machine speed at 5 m/h and increasing the pressure with a maximum of 0.38 bar because after that there was a clear defect in the printing process . It can save time and increase production without compromising the quality of the printed product. The prediction by CFD modelling was adequately able to predict the formation and development of an ink droplet ejected from the printhead of an inkjet printer. Relationship between the different effect of pressure and the variable speed of the print head and their relationship to the print quality. And we also find that it is possible to reach the maximum degree of printing accuracy after controlling the pressure and speed of the print head.

Keywords

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