

Effective Work Roll Cooling toward Stand Reduction in Hot Strip Process

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Abstract : The maintenance of work rolls in hot strip processing has been lengthy and difficult tasks for hot strip manufacturer because heavy work rolls have to be taken out of the production line, which could take hours. One way to increase the time between maintenance is to improve the effectiveness of the work roll cooling system such that the wear and tear more slowly occurs, while the operation cost is kept low. Therefore, this study aims to improve the work roll cooling system by providing the manufacturer the relationship between the work-roll temperature reduced by cooling and the water flow that can help manufacturer determining the more effective water flow of the cooling system. The relationship is found using simulation with a systematic process adjustment so that the satisfying quality of product is achieved. Results suggest that the manufacturer could reduce the water flow by 9% with roughly the same performance. With the same process adjustment, the feasibility of finishing-mill-stand reduction is also investigated. Results suggest its possibility.

Keywords : work-roll cooling system, hot strip process adjustment, feasibility study, stand reduction

Conference Title : ICMSE 2014 : International Conference on Manufacturing Science and Engineering

Conference Location : Venice, Italy

Conference Dates : June 19-20, 2014