

Prediction of Rolling Forces and Real Exit Thickness of Strips in the Cold Rolling by Using Artificial Neural Networks

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Abstract : There is a complicated relation between effective input parameters of cold rolling and output rolling force and exit thickness of strips. In many mathematical models, the effect of some rolling parameters have been ignored and the outputs have not a desirable accuracy. In the other hand, there is a special relation among input thickness of strips, the width of the strips, rolling speeds, mandrill tensions and the required exit thickness of strips with rolling force and the real exit thickness of the rolled strip. First of all, in this paper the effective parameters of cold rolling process modeled using an artificial neural network according to the optimum network achieved by using a written program in MATLAB, it has been shown that the prediction of rolling stand parameters with different properties and new dimensions attained from prior rolled strips by an artificial neural network is applicable.

Keywords : cold rolling, artificial neural networks, rolling force, real rolled thickness of strips

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