

عنوان مقاله:

Experimental and Neural Network Prediction of Elongation and Spread after First Stage of Fullering

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خلاصه مقاله:

Fullering process is a type of open die forging. In this research, elongation and maximum sideways spread in final shape of a billet after the first blow of a fullering process are predicted by designing a back propagation multilayer perceptron neural network. Several experiments are conducted using lead as the model material. Billets with three different square cross-sections are used in these experiments. These fullering physical investigations are performed to simulate the elongation and maximum sideways spread in the final shape of the billet at the end of the first blow of the process. In addition, ring compression tests are undertaken in the quantitative determination of the friction coefficient for three kinds of lubricants. In the training of neural network width of billet, friction coefficient, height of the final shape, and die length are used as the input data. Elongation and maximum sideways spread in the final shape of the billet are the specified outputs. As a result of the specified parameters, the program is able to estimate the elongation and maximum sideways spread for any given input variables instead of time consuming experimental processes or finite element simulations.

کلمات کلیدی:

Artificial Neural Network, Elongation and Spread, Fullering

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