実施報告

シミュレーションに累積法を用いた新しいプレス加工のアイデアの評価方法

How to evaluate new press working ideas using the cumulative simulation method

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New press working ideas sometimes suggest themselves as images during the development process. These images are then simulated to persuade people of their value, but since this is a trial and error process, lacking characteristic values, ideas that might turn out to be useful in the future may end up being discarded. We therefore decided to develop a quick and systematic evaluation method by (first) simulating press working ideas while they were still just ideas, and (second) finding the technical information (factors) that would determine the shape of the workpiece or mold, and then making it. The first step was carried out by the following method:(1)A CAD drawing was created from our image of what the workpiece or mold would look like. (2)Factors and levels were derived from the CAD drawing. (3)An orthogonal array was used to carry out simulations. (4)The simulations were animated and compared. (5) The results were rated into three categories: good if they approached the intended image, bad if they moved away from it, and otherwise neutral. (6) The cumulation method was applied. The second step was carried out by applying the method of the first step to a large number of factors to obtain technical information. The shape of the mold or workpiece was then determined on the basis of this information and trial manufacture was carried out. The data were also analyzed by dividing the machining process into initial, intermediate, and final stages to increase the amount of data, applying the cumulation method, and using the SN ratio.

Key words：robust quality engineering, Taguchi methods, cumulation method, press, simulation, idea, shell bearing, reverse process, S/N ratio

1. 緒　　言

1.1 背景

田口玄一は，日本の技術研究が外国の発明を改良

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