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DEVELOPMENT OF INNOVATIVE TOOL USING TAGUCHI-METHODS FOR THE NEAR FUTURE

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Recently, Taguchi method is used to decide optimum processing conditions with narrow dispersion for robust design. On the other hand, innovative development with short-term, low cost, labor saving and energy-saving is also required in the world. In this research, the software for innovative tool using Taguchi methods is developed and evaluated. There are two parts in the innovative tool; Part 1 is the management of production and Part 2 is the analysis for investigation regarding the influence of the control. In Part 1, the Taguchi methods first calculated the average and the standard deviation regarding all combinations using all parameters. The management of production was finally used to select the optimum combination of all parameters for success percentage, accuracy, manufacturing time and total cost. The spring back to warm press forming on the magnesium alloy plate was investigated for evaluating the Part 1 in the experiment. It is concluded from the result that this system effectively predicted optimum process conditions in each priority and the predicted results confirmed the results of the spring back test. In Part 2, this part is firstly accomplished for selecting important control factors, and the next trial decides the optimum combination of the control factors by more detail trial. The optimum condition for cooling system at cutting was investigated for evaluating the Part 2 in the experiment. It is concluded from the result that this system was useful for development with short-term and lower cost and this tool could quickly and exactly decide the optimum cooling condition.

Biography

Ikuo Tanabe has completed his Ph.D. from the Nagaoka University of Technology. He is the Professor of Mechanical Engineering at the Nagaoka University of Technology. He has published more than 116 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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