

Optimization Strategy of the Spinning Process

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Abstract:

The spinning process is described using the plasticity theory of von Mises together with several simplifying assumptions, such as a plastic-rigid material characteristics and a rigorous symmetric process. The resulting general solution is non-linear. However, it has been experimentally shown that the use of the first and second terms of suitable power series in calculations of the spinning curves was sufficient to avoid common damages appearing in the blanks, such as wrinkles and cracks. The spinning curves have been calculated using the ratios of the principal strains which were held constant along a spinning curve. Experiments with Pt-materials showed that optimum results are attained only if the ratios of the principal strains have been chosen correctly as a function of the spun material and the applied approximation.