

Physical and Numerical Modelling of Tube Piercing Processes

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Applied research and experimental development in forming processes used in metal forming technology of seamless tubes in the past took place in the Czech Republic in the workplace VSB-TU Ostrava. The main tools of modern research on this issue are conducted mainly in two directions mathematical modelling, which also includes the numerical simulation of those processes and physical modelling. Besides the more general use of mathematical modelling physical modelling is likely the most appropriate procedure of a complex process of cavity formation during axial rolling of seamless tubes for laboratory research and development of those processes. The conducted experimental development can proceed to the simplest experiment which is a technological test directly on production equipment. This can be carried out but only to a limited extent, because the preparation and implementation of such an experiment is reduced production and is associated with loss of the line performance. Experimental device enabling deformation of steel billet should meet several similarity criteria between the physical model and the actual process. Presented paper is focused on the modelling capabilities of skew rolling in Material & Metallurgical Research Ltd. in Ostrava. There are presented basic results of physical and mathematical modelling of tube production too.

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