

A Global Approach of the Finite Element Simulation of Hot Stamping

P. Hein

Arcelor Flat Carbon Steel, Automotive Research Center BP 30109, 60761 Montataire, France

Philipp.Hein@arcelor.com

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Abstract. The use of quenched boron steel components is an economic way to achieve significant improvements in terms of weight saving and crash performance. The material and process knowledge on the hot stamping of boron steels (e.g. Arcelor's USIBOR 1500 P[®]) by the stampers needs to be extended and accurate simulation tools must be developed to support the growth of this forming technology.

This paper simultaneously addresses the specific requirements of the hot stamping simulation and the current state of the art in this field. A specific approach is presented for the detection of the process limits within the simulation tool. A software chain has been set up with the target to decrease the computation times.