

4th International Conference

**HOT SHEET METAL FORMING
of HIGH-PERFORMANCE STEEL
CHS²**

June 9-12, 2013, Luleå, Sweden

Proceedings

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Edited by

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Editorial

We have now reached the fourth international conference on the topic of hot sheet metal forming of high-performance steel. The conference is arranged in Luleå, Sweden, the place where the technology of press hardening was invented and industrialized, starting 40 years ago. Since the 1st CHS² conference arranged in 2008 in Kassel, Germany, the CHS² conference series has become the meeting place where the people interested in this increasingly important technology look forward to present and discuss the latest research findings and developments on the international arena.

The demand for hot sheet metal forming technology is steadily increasing and we are now experiencing an outstanding growth in a variety of applications, mainly in the automotive sector. For the design of automotive vehicle structures, press hardening has become the leading technology for solutions with the aim to reduce weight in combination with maintained or increased passenger safety. A trend that can be observed is that a 3rd generation of manufacturing companies producing press hardened components are entering the market. These are often large companies previously mainly producing with cold forming technologies. These companies have after thorough studies and testing, obtained the capacity to produce press hardened components, thus adding their capacities to the global market.

With increased usage, there are a lot of challenges in industrial development and research. There is a demand for research concerning surface coatings, process for and applications of components with tailored material properties. We see process issues such as high temperature tribology and tool wear. There are also challenges concerning prediction of failure in the manufacturing process as well as in the automotive applications such as crashworthiness simulations involving components with tailored properties.

For the future we can foresee new applications of hot forming. One new segment concerns applications of press hardening technologies in the sector of heavy transport. With hot forming it is possible to produce complex thick-walled high-strength components in order to reduce weight and thus increase transport capacity and efficiency.

This fourth international conference reflects the continuous progress in research and development that has already been highlighted in the previous conferences since 2008. The author contributions add to the knowledge that is necessary for the knowledge driven development of the hot forming technology. The scientific and industrial community is further strengthened and the results and developments from the growing international research programmes are presented. As the previous conferences, CHS² 2013 is the focal point for progress in the field of hot sheet metal forming of high-performance steel.

Mats Oldenburg

Braham Prakash

Kurt Steinhoff

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