Institut für
Integrierte Produktion Hannover

Press release

Hybrid forging: When lightweight construction meets bulk forming

IPH conducts research on a new production technique

Hanover, 31 January 2011 – Hybrid forging combines both forming and joining of bulk and sheet metal elements in one single process. In a new project the IPH – Institute of Integrated Production Hanover investigates how hybrid forging can be put into practice. Thanks to the new technology, goods like the roof racks of convertibles could become much lighter – and cheaper.

The idea of combining forming and joining technologies into hybrid forging was thought up by the engineers at the IPH, a research institute based in Hanover, Germany. Preliminary tests are promising: Tests with positive substance jointing and positive locking thru simultaneous forming of sheet metal and bulk parts have been successful. How the new technology can be put into practice is now the subject of a new research project conducted by the IPH. Until the end of the year technical requirements are going to be checked and tools are going to be developed. .

“Hybrid forging can reduce process chains and thus reduce costs”, Hanns Kache, the engineer responsible for the project, explains. Thin elements of forgings might become lighter due to the use of sheet metal, without losing stability. Furthermore, highly stressed sheet metal parts might be enforced thru bulk elements. In the future, more combinations of both bulk and sheet metal parts will probably be used. “Hybrid forging is very attractive for the automobile industry, as the technology offers a lot of new possibilities with regard to both lightweight design and stability”, Kache forecasts. “Materials of any kind could be combined.”

Up till now bulk parts are produced through techniques such as forging. Sheet metal parts are being formed and partially, in an additional process, joined. To combine both the stability of bulk parts and the lightness of sheet metal parts, sheet metal elements can also be conjoined with bulk parts. An example of such a product are roof racks of convertibles. They are first formed and then joined. The hydro forging combines both steps. Thus, the production of goods like these becomes cheaper. Also, the construction of completely new parts becomes possible.

The one-year project ”hybrid forging“ started on 1 January 2011. It is funded by the German Research Funding Organization, DFG (= Deutsche Forschungsgemeinschaft e. V.).

www.iph-hannover.de.

About the IPH

The IPH – Institute of Integrated Production Hanover was established as a spin-off of the Leibniz University of Hanover in 1988. Ever since, the company has been operating in the field of production engineering. Its customers include both industrial enterprises and research associations.

Research and development, consulting, and qualification are the company's major fields of activity. Themes include process technology, production automation, production and logistic networks, and the production of xxl goods.

The IPH is based in Hanover and has 69 employees, including 30 engineers/technicians.

Press contact

IPH – Institute of Integrated Production Hanover
Ms. Meike Wiegand
Hollerithallee 6
30419 Hannover
Germany

Phone: +49 (0) 511 27976-116
Email: wiegand@iph-hannover.de