

Improved joining of hot-stamped parts



Auf einen Blick

- Selective thinning and softening in car body parts
- New options for conventional hot stamping process
- Enhanced process window and improved joining processes
- Increased efficiency and saving of energy

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IFUM | New options for conventional hot stamping: Researchers at IFUM intend to improve the joinability of hot-stamped car body parts in multi-sheet joints. This is achieved by local thinning and softening of the austenitised material.

Hot-stamped structural parts are a key factor in automotive lightweight design, where 22MnB5 steel has become an established material in the production of safety-relevant car body parts. An improved reliability of joining technology would even widen the range of application of hot-stamped parts.

Up to now, ultra-high-performance car body parts are thermally joined to other parts by spot welding. Problems arise from uneven weld lense formation with improper bonding in multi-sheet joints. The applicability of mechanical joining processes like riveting is also limited due to the high strength and hardness of the hot-stamped parts.

Researchers of the Institute of Forming Technology and Machines (IFUM) intend to improve the joinability of hot-stamped parts by local thinning and softening of the austenitised material. The result: improved thermal as well as mechanical joining techniques.

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