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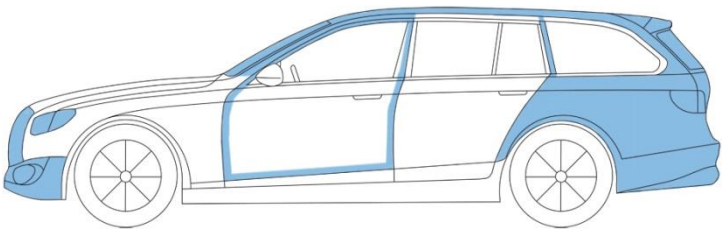

Crash box

Exhibit description	Hydroformed press-hardened crash box made of 22MnB5
Function	Structural component relevant for crash
Concrete benefits	High strength (1600 MPa) allows reduction of wall thickness and thus resulting in weight reduction
Exhibit-related competences	Press hardening of components from closed profiles in the forming process based on action media, process design, "steel" lightweight construction
Unique selling proposition	Combination of forming processes based on action media with press hardening of manganese-boron-alloyed steels
Target industry/target group	Vehicle industry in general

Fraunhofer-Institute for Machine Tools and Forming Technology IWU

Frank Schieck
Phone +49 371 5397-1202
frank.schieck@iwu.fraunhofer.de

www.iwu.fraunhofer.de

Strengthened crash boxes

Exhibit description	Steel profiles locally strengthened by laser (left-hand side and right-hand side), un-strenghtened profile, comparison of the upsetting heights at the same impact speed
Function	Improvement of crash properties, increase in component stiffness, control of crash behavior
Concrete benefits	Stiffening of longitudinal beam in areas relevant for crash, controllable failure behavior, increase in crash energy absorption when reducing the upsetting path
Exhibit-related competences	Wide expertise for local hardening and softening of components by laser technology; calculation and simulation of failure behavior and mathematical determination of the component areas which are heat-treated locally
Unique selling proposition	Optimization of material properties by local heat treatment as regards increase in component stiffness and behavior under abusive load
Target industry/target group	Automotive suppliers and manufacturers

Fraunhofer-Institute for Machine Tools and Forming Technology IWU

Maik Ahnert
Phone +49 351 4772-2427
maik.ahnert@iwu.fraunhofer.de

www.iwu.fraunhofer.de