

For safe and lightweight vehicle seats: thyssenkrupp Steel shows tailored portfolio for lightweight seat structures at EuroBLECH

- High-strength and good formability: new high-strength, cold-rolled multiphase steel predestined for complex safety and crash-relevant structural components of modern vehicle seats
- Application examples of high-strength dual-phase and complex-phase steels, as well as other innovative steels will be presented by thyssenkrupp Steel from 25 to 28 October at the EuroBLECH trade show in Hannover, Hall 17, booth E33
- Presentation by thyssenkrupp Steel on "bluemint® Steel and the transformation of steel production at thyssenkrupp Steel Europe" on 27 October 2022 from 2:00 p.m. to 2:30 p.m. in the EuroBLECH Presentation Area, Hall 26, booth L60

The front seats and rear bench seats in vehicles have to meet the most stringent requirements in terms of economy, installation space, lightweight construction, safety, and comfort nowadays. With its portfolio of economical lightweight steel seat structures tailored to the automotive industry, thyssenkrupp Steel can fully meet this demand: From high-ductility, close-tolerance hot-rolled strip and precision strip to cold-rolled, high-strength multiphase steels with the best forming and joining properties, the product range offers everything suppliers and automotive manufacturers need. New in the range: uncoated dual and complex-phase steels with strengths of 800 as well as 1,000 megapascals (MPa).

Solid and formable

The modern vehicle seat should be lightweight yet crash-proof, take up little installation space and be cost-effective to produce – all without compromising comfort, of course. "Seat structures are a complex system in which every single structural component matters. Even

small differences in weight or strength make a decisive difference," explains Sarah Abraham, Product Manager at thyssenkrupp Steel.

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Load is exerted on the front seat backrest by the passenger in a rear-end crash, and by the items carried in the vehicle in a frontal crash. Accordingly, different crash load cases must be taken into account for the backrest side member, cushion side member and cushion pan. The robust high-strength dual-phase steel DP-K® 440Y780T HHE with good deep-drawing and elongation properties is particularly suitable for this purpose. At around 800 MPa, the cold-rolled dual-phase steel is not only high-strength but also offers good formability. The grade offers high work hardening and absorbs significantly more energy in case of a crash than conventional microalloyed steels. This makes it ideal for a structural component with high crash relevance and forming complexity such as the backrest side member. Another new product for seat structures is the complex-phase steel CP-K® 780Y980T, which increases the functional safety of seat rails thanks to its high strength and excellent forming properties. It has a high hole expansion capacity and can be optimally processed by roll forming, bending and edging. Both materials allow a reduction in material thickness without limiting function and safety.

Strong protection but very light

The structures of rear bench seats are very different depending on the vehicle, and so are their requirements such as divisible or non-divisible rear bench seats.

Microalloyed steels are suitable for demanding forming operations such as flanging and beading – perfect for the production of back plates. The best examples are HC420LA and HC460LA. Sections and reinforcing sheets are used to meet the demanding crash requirements of the rear bench seat. The steel grade scalur® S420MC, microalloyed hot-strip with extremely narrow thickness tolerances of up to ± 0.05 mm and a very flat profile, offers not only the best processing properties but also high lightweight construction potential. Material cards for selected hot and cold-rolled steels are available for simulating forming processes and load cases in advance of production.

thyssenkrupp is looking forward to face-to-face encounters and stimulating industry discussions at EuroBlech 2022. Visit the booth from 25 to 28 October 2022 in **Hall 17, booth E33**.

Contact:

thyssenkrupp Steel Europe AG

Public/Media Relations

Christine Launert

T: +49 203 52 - 47270

christine.launert@thyssenkrupp.com

www.thyssenkrupp-steel.com