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**Lightweighting for agriculture: Steel Innovation Prize for mower bar made of high-performance steel from thyssenkrupp Hohenlimburg**

Mowing is a key part of agricultural forage harvesting. The mower lays the foundation for high-quality animal feed, and the most important part of the mower is the mower bar. Made of steel, the mower bar houses the drive train and is fitted on the outside with the mowing discs that cut the crop with their knives. Due to the crop flow, dirt and high speeds, the bar is exposed to heavy stresses.

The idea of further improving the mower bar and stamping it to the ideal shape from a single piece of steel was one that Martin Ober, mower designer with the agricultural equipment manufacturer CLAAS, had had for some time. As part of a new project he was able to turn his vision into reality. But first he needed the right material. “The steel needed to be very strong and yet readily formable,” says Ober. An advert drew his attention to the steel grade HSM 700 HD made by thyssenkrupp Hohenlimburg. “I immediately thought it could be the answer,” says Ober, who quickly got to work. Now MAX CUT, the mower bar made from the innovative Hohenlimburg material, has won a Steel Innovation Prize.

With its precisely controlled low carbon content the innovative steel grade HSM 700 HD displays a quasi-single-phase, ferritic microstructure, making even complex forming operations possible. “The requirements the material has to meet in agriculture are extremely high,” says Udo Houben, a technical customer support specialist with thyssenkrupp Hohenlimburg. “The steel is exposed to heavy stresses over a long period.”

**“A unique innovation”**

Depending on the working width of the machine, the MAX CUT mower bed is supplied in various lengths and in thicknesses of four and five millimeters. It is stamped to the shape of the mower bar from a single piece of steel in a 3,000-ton hydraulic press. “HSM 700 HD steel has proved very successful for this application,” says Houben. Due to its high strength, parts can be made thinner than is usually the case in agricultural machinery. “Lightweighting with steel is already greatly appreciated in the auto industry. With the increasing working widths in agriculture, it is also becoming more and more important in this sector, allowing eco-friendly fuel savings.”

The MAX CUT was awarded second place in the “steel products” category. The judging panel was impressed by the overall concept, describing the new mower bar as a “unique innovation”. “We always endeavor to develop products in close collaboration with customers,” says Houben. “I’m delighted at this award.”

thyssenkrupp Hohenlimburg offers its customers a broad range of high-ductility (HD) fine-grain structural steels from the HSM 355 HD to the HSM 800 HD. The company’s developers are currently working on the grades HSM 380 HD and HSM 420 HD.

**About the Steel Innovation Prize**

Every three years since 1989 the German steel industry has honored outstanding innovations with the Steel Innovation Prize. This time around a panel of 20 experts from business, research, design and architecture selected 13 prize winners from 561 entries. The prizes are awarded in four categories and are worth a total of 60,000 euros. They go to production-ready products that consist entirely or mainly of steel and open up new and improved uses. Particular emphasis is placed on functionality, economy and environmental compatibility. The next Steel Innovation Prizes will be awarded in 2021.

[www.stahl-innovationspreis.de](http://www.stahl-innovationspreis.de)

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