

Steel



thyssenkrupp

Wear resistance has a name: TBL

Agricultural machinery and concrete mixer trucks are only cost-efficient if their steel structures have high wear resistance. At the same time you as a manufacturer need steels that are easy to process. Both properties are ideally combined in hardenable TBL boron steels from thyssenkrupp.

TBL steels are fine-grained, boron-alloyed special structural steels with not only high surface quality and a high degree of cleanness, but also tight analysis tolerances. These ensure consistent hardening behavior, smooth production processes and consistently high product quality.

With TBL steels, you combine outstanding wear protection with excellent forming and hardening capabilities – and also not least with cost reductions.

Advantages at a glance

- ⊖ High wear resistance for longer life
- ⊖ Consistently high end product quality
- ⊖ Flexible forming with adjustable properties
- ⊖ Substantial cost savings



TBL steels from thyssenkrupp: the ideal combination of wear resistance and processability.

engineering.tomorrow.together.

High wear resistance. For consistently high product quality.

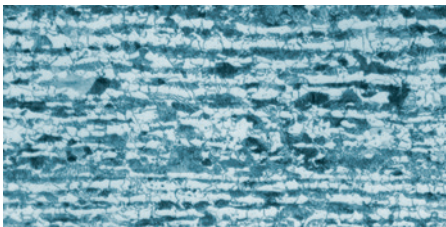
Even in the as-delivered condition, thyssenkrupp's TBL steels have excellent forming properties and good weldability. For use in agricultural machinery they are usually heat treated after processing. And this is where the addition of boron comes into play: It means that TBL grades can be quenched without difficulty in water, oil or polymer quenchants. As a result, TBL steels are also suitable for complex structures where high wear resistance is required, for example in harrows, packers and plows. Depending on steel grade and heat treatment conditions, different mechanical properties can be achieved.

Also very effective unhardened

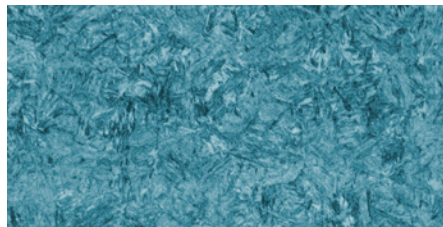
For more moderate wear conditions TBL grades can also be used successfully in the unhardened condition. The good wear properties here are made possible by the micro-structure set during rolling, characterized by the simultaneous presence of both hard and soft microstructural components – pearlite alongside ferrite.

Impressive final hardness

The maximum achievable hardness after hardening for TBL is up to 660 HBW (62 HRC). Ultimately, achievable hardness depends to a large extent on chemical composition and the cooling rate during the hardening process. The recommended austenitizing temperature is 860-900°C. Tempering after hardening is normally not necessary.



The microstructure of TBL steels displays both hard pearlitic (dark areas) and soft ferritic components (bright areas).



After hardening, the microstructure of TBL steels is 100 % martensitic.

Available dimensions TBL steels

Steel grade	Delivery form	Thickness ¹⁾ [mm]	Width ¹⁾ [mm]
		from _ to	min. _ max.
TBL 30	Wide hot-rolled strip	2.50–15.00	1,000–2,000
TBL 35	Wide hot-rolled strip	2.50–15.00	1,000–1,630
TBL 40	Wide hot-rolled strip	3.00–12.00	1,000–1,630
TBL 45	Wide hot-rolled strip	3.00–12.00	1,000–1,630
TBL 50	Wide hot-rolled strip	3.00–12.00	1,000–1,630

¹⁾ Not all thickness, width and length combinations are possible. Cut-to-length plate on request.

Everything to help you get ahead: our service.

Together with you we not only develop innovative materials. For processing-related questions you also have access to the extensive know-how of our research and applications people.

Our know-how



Material concepts



Process optimization



Processing support

Your benefit



Weight optimization



Performance



Cost savings

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