BONA*STAR*® *4BD* | product specification

Rolling stock wheels are exposed to extreme loads and if we require to secure their long lifespan, we have to use first-class materials with well-balanced mechanical properties.

BONA*STAR®4BD* for wheels (of vehicles that are not 100% braked on the running surface) is the answer to this challenging situation. Thanks to BONATRANS Return of Experience it can be stated that wheels made from specially developed materials can achieve lifespan higher than 2,000,000 km.

Key features

- Approximately 30% higher lifespan compared to the wheels made from common materials
- Increased resistance against Rolling Contact Fatigue (RCF) and hence also against the development of shelling on the wheel tread
- High operation reliability
- Ultimately reduction of the wheelset Life Cycle Costs (LCC) during the rolling stock life

GHH-BONATRANS
Pioneers of wheelset solutions

Verification

- Repeated detailed tests of the material mechanical properties and parameters have been performed.
- Detailed material tests have been performed.
- Material fatigue tests have been performed both on small test specimens as well as on real-size wheels.
- Laboratory material tests have been performed on Twin Disc test equipment to test the wear and sensitivity to RCF.

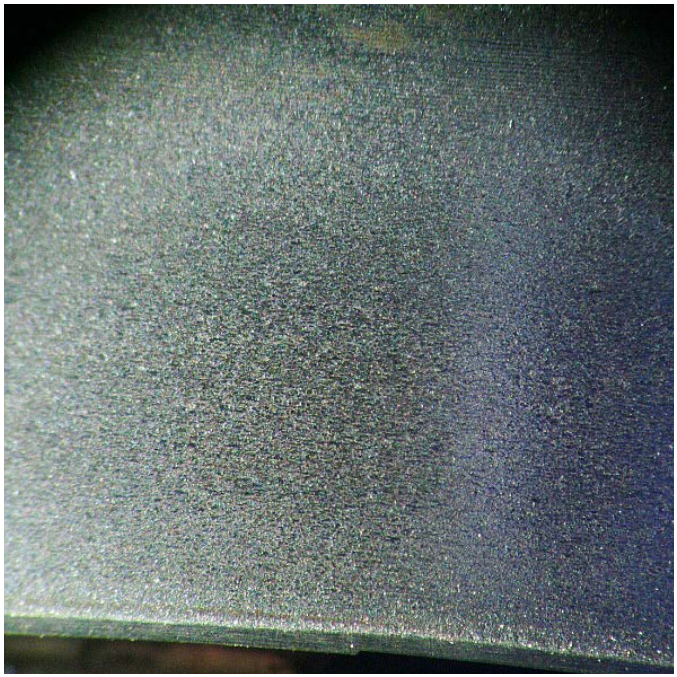
Application

- All types of freight wagons, locomotives and passenger vehicles (multiple units as well as coaches for inter-city, suburban and urban rail-bound transportation).

Approval

- Applicable according to TSI for passenger, locomotive and freight rolling stock.

BONA*STAR®4BD*



ER8

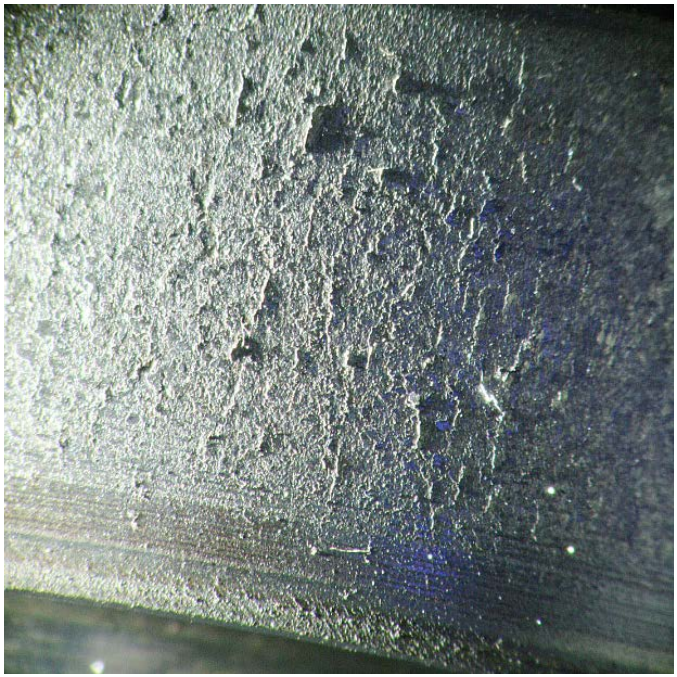


Photo documentation of the contact surfaces after 50,000 cycles of the Twin Disc tests applying a 1,500 MPa contact pressure, with slippage 0.9 %

Grade	Change in the sample diameter (mm)	Mass reduction (g)	Sample cross extension (mm)
BONA*STAR®4BD*	0.471	2.88	1.39
ER8	0.495	2.93	1.44

Table comparing the behaviour of the two materials on the Twin Disc test equipment.