BONATRANS stress optimised freight wheels

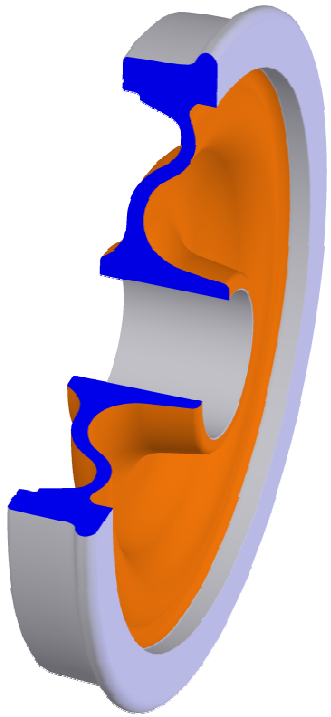
- A family of low-stress, high-safety freight wheels and wheelsets, designed and developed by BONATRANS
- Very good performance under high thermal loading caused by tread braking
- Because of their qualities, BONATRANS low-stress freight wheelsets have become the most frequently applied freight wheelsets in modern European freight wagons

Main characteristics of stress optimised wheels

- **Reduced axial wheel deformations** – considerable reduction of permanent displacement of wheel rim against the wheel hub increases vehicle safety during run through switches and other rail equipment (more than 60% lower deformation than the standard UIC-ORE wheel)
- **Low level of residual stresses** – Low residual internal stresses after cooling and high fracture toughness reduce danger of origination and propagation of cracks in the wheel rim (40% to 50% lower than the UIC-ORE wheel)
- **Long operational life cycle** – wheel design allows higher number of reprofiling than the standard UIC-ORE wheel and other types of wheels
- **High loading capacity**- the wheel are designed for axle loads up to 25t and higher loads are also applicable

BONATRANS wheel B29 (BA314)

- Low weight
- Full conformance with the new European standard EN 13979-1
- Certified by DB (as BA314 and BA324) and by many other railways
- TSI certified
- 350,000 wheels already in operation all over Europe



BONATRANS wheel BBS

(BBS = BONATRANS Brake Stability)

- Very high stability under high thermal loading caused by tread braking, especially by modern composite brake pads (K, L, LL)
- Full conformance with the new European standard EN 13979-1
- Certified by DB (as BA318 and BA319) and by many other railways
- TSI certified
- 100,000 wheels already in operation all over Europe