



BONAESFA | product specification

The wheel design meets the current requirements on stress and deformation behaviour for wheels subjected to greater heat load from braking using composite blocks (K,L as well as LL).

The axle seat and axle body have 10% higher safety compared to the standard design wheelsets. Low levels of stress and deformations are guaranteed when subjected to thermal loading caused by braking.

Major advantages

- High resistance to thermal load
- Excellent stress and deformation characteristics
- Exchangeable with standard wheelsets
- Axle body and axle seat reprofiling up to 3 mm
- Anti-corrosion protection Class 2 acc. to EN 13261 (gritting resistance Class 1)



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Product compatibility

The **BONAESFA** wheelset is dimension-wise fully exchangeable with standard wheelset types BA004/304, BA324/314 and BA318/319, and with other UIC-ORE types of wheelsets for all types of Y25 bogies and their modifications.

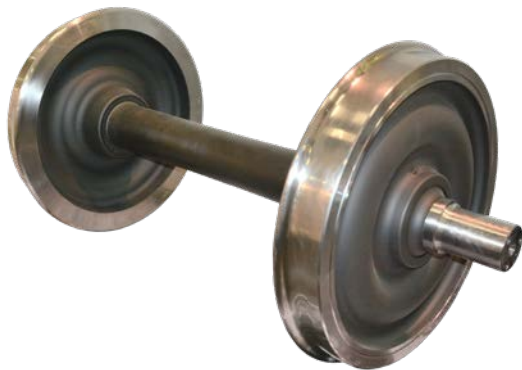
The **BONAESFA** wheel web design is identical with the optimised wheels from the Bonatrans Brake Stability portfolio. The patented solution secures low level of stress and deformation when subjected to thermal loading caused by braking (max. deformation of a heated wheel by repeated braking on a downhill by 50 kW over the period of 45 minutes is approximately 1.5 mm, residual deformation after the wheel has cooled down is 0.6 mm). These low deformation values apply to both a new rim as well as to a maximum worn out wheel by traffic).

Design verification and validation

Verifications of the wheel and axle design were carried out by calculations according to EN 13103-1 and EN 13979-1. Design validation was carried out by means of fatigue tests on wheels and axles, and by means of a wheel braking test.

Product approval

The wheelset homologated according to TSI WAG.



Technical specifications

- Maximum static load: 25 t
- Maximum operation speed: 120 km/h
- Nominal diameter of a new wheel: 920 mm
- Worn out limit of the wheel: 840 (alter.830) mm
- Wheel material: ER7 cat. 2 according to EN 13262 and DBS 918 277
- Axle material: EA1N cat. 2 according to EN 13261 and DBS 918 275
- The wheelset has been designed and is made in compliance with with European Safety Freight Axle (ESFA) requirements and in accordance with EN 13260, DBS 918 274 and TSI WAG
- Nominal weight of the wheelset: 1129 kg
- Nominal weight of the wheel: 352 kg, nominal weight of the axle: 425 kg
- Gritting resistance of the coating down to -40°C / Class 1 according to EN 13261

