

FAG Wheelset and Gearbox Bearings in the Dresden Tramway



Examples from Application Engineering

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Dresden NGT8DD tramway car developed and built by Siemens AG Transportation Systems

In 1995 the first NGT6DD tramway cars were put into service. The five-section articulated low floor units feature two motor bogies and one trailer bogie.

In 2001 the NGT8DD followed, a longer version of its predecessor. Two more sections and a third motor bogie were added in order.

FAG supplies the bearings, both for the wheelsets of motor and trailer bogies as well as for the wheelset gearboxes.

Axle of the trailer bogie

Type NGT6DD and NGT8DD

The wheels are supported by two tapered roller bearings which are mounted on a short journal instead of a through axle. In order to achieve a continuous low floor height, the midsection of the cross arm is lowered.

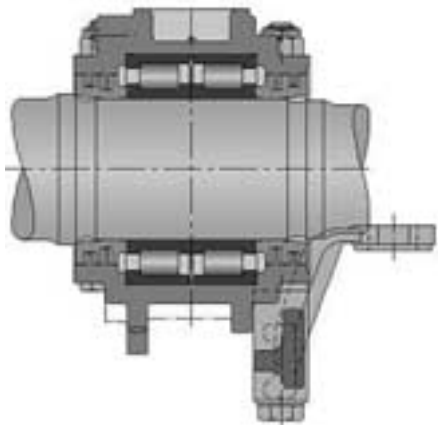
Bearings per wheel: 33024.801628 tapered roller bearing
(Ø 120 x 180 x 48 mm)
32228A.801479 tapered roller bearing
(Ø 140 x 250 x 71.75 mm)

Motor bogie

NGT6DD

Both motor bogies are equipped with FAG AMG110Z171166A.- wheelset bearings (internal bearing arrangement with metal-rubber blocks). For easy mounting the housing is axially split. The holding devices for the electro-magnetic rail-brake are fastened to the housing. Radial and axial loads are taken up by cylindrical roller bearings with machined brass cages.

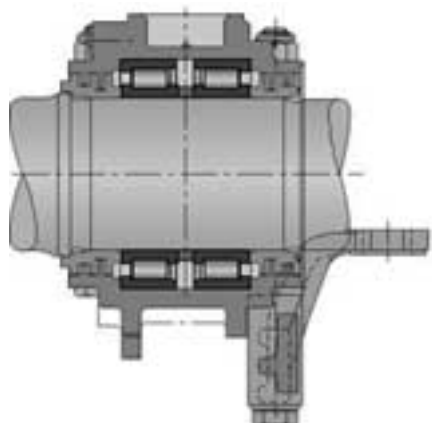
Bearings per wheel: two 577935 cylindrical roller bearings
(Ø 110 x 180 x 50 mm)



NGT8DD

– two motor bogies for an axle load of 8.6 t
– one motor bogie for an axle load of 11 t
Both 8.6 t - bogies are equipped with AMG120Z.176253.- wheelset bearings consisting of split housings guided by metal-rubber blocks with cylindrical roller bearings. Based on new rating standards, the axle diameter of 110 has been increased to 120 mm.

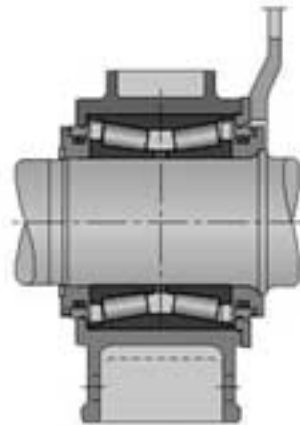
Bearings per wheel: two 804970 cylindrical roller bearings
(Ø 120 x 180 x 44 mm)



The internal bearing arrangement of the 11 t - bogie consists of ASG130T.176241.- wheelset bearings. The housings have spring seats, laterally arranged, and are guided by metal-rubber blocks.

The loads involved are safely supported by tapered roller bearings units (TAROL-bearings).

Bearings per wheel: one TAROL130/220.804888.E34*
(Ø 130 x 220 x 150 mm)



Gearbox

Two-step helical Flender spur gear.

Bearing selection: The pinion shaft is radially supported by two cylindrical roller bearings. The axial forces are taken up by a four-point bearing (with radially relieved outer ring).

The intermediate shaft is mounted on two cylindrical roller bearings and the output shaft on two tapered roller bearings in O arrangement.

Pinion shaft: One NJ214E.M1A.C3 cylindrical roller bearing
One NU212E.M1A.C3 cylindrical roller bearing
One QJ212.N2MPA.C4.F59 four-point bearing

Intermediate shaft: Two NJ312E.M1A.C3 cylindrical roller bearings

Output shaft: One 801094 tapered roller bearing (special design)
(Ø 196.85 x 254 x 28.575 mm)
One 801093 tapered roller bearing (special design)
(Ø 177.8 x 227.012 x 30.162 mm)



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