

# FAG Wheelset Bearings for Diesel Rail Cars



## Examples from Application Engineering

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**XTER73500: Diesel rail car for the French State Railways SNCF**



**VT641: Diesel rail car for the German Railways DB**  
Diesel rail cars developed and built by ALSTOM GmbH

Courtesy of ALSTOM LHB GmbH

These modern diesel-driven light rail cars are used for rapid transit service on non-electrified lines in France and Germany. Luxembourg Railways CFL employ a modified version; the Class 2101.

By mid-2002, SNCF had ordered 301 cars and DB another 40. The

cars are built by ALSTOM/France (DDF at Reichshoffen) and the bogies by ALSTOM LHB Salzgitter.

The joint order for the essentially identical railcars has enabled manufacturing cost savings through development, design and construction compatibility.

**FAG provided the complete wheelset bearing units for the XTER73500, VT641 and Class 2101 diesel rail cars.**

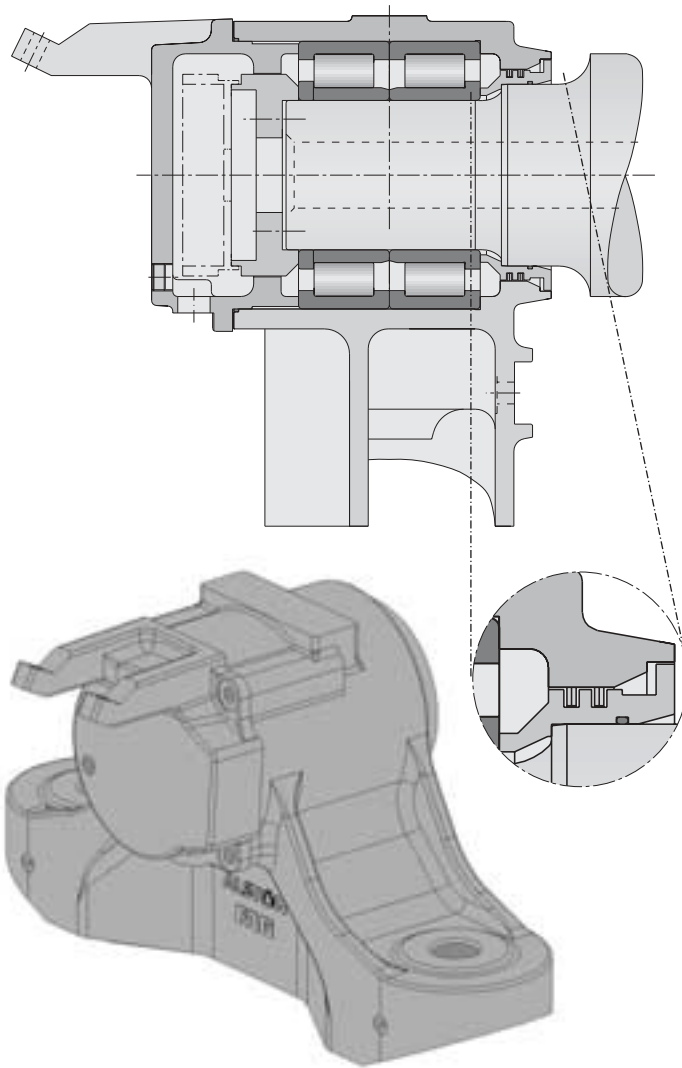
## Vehicle data

The single unit diesel rail cars are equipped with two engines at each end, which can be coupled together to form a train of three cars.

One of each axle of the two bogies is driven.

- Top speed 120 km/h (DB)  
140 km/h (SNCF)
- Dead weight (DIN 25008) 48 000 kg
- Max. axle load approx. 16 t
- Tread circle 840 mm (new)
- Drive power max. 2 x 257 kW
- Seats and standing room: 80 + 137

## Wheelset bearing



### SNCF design

WJ/WJP cylindrical roller bearings with polyamide cages safely support the loads involved.

The bearings have been performance-tested on the test rig of the DB AG according to the Euro standard EN 12082.

Each wheelset is equipped with two pairs of cylindrical roller bearings

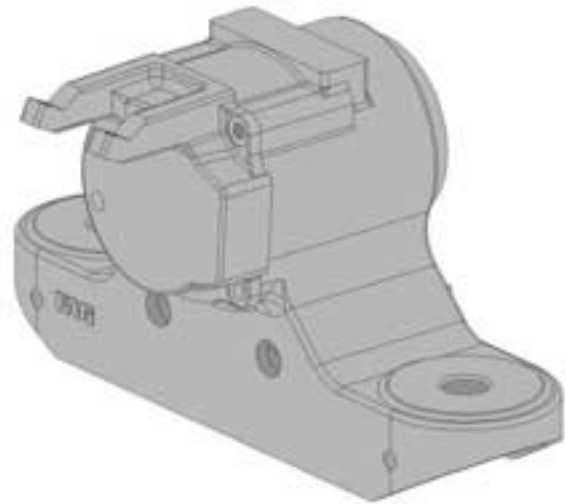
**FAG WJ120x215TVP** and

**FAG WJP120x215P.TVP.**

The separable bearings can be easily mounted and facilitate a quick inspection of the functional areas.

## Housings

The wheelset bearings with lateral spring seats are made of spheroidal graphite cast iron to EN 1563. The housing strength has been determined with the boundary element method (BEM). Two designs are available to satisfy the end user's requirements for the HOA (hot box detection), and painting as well as auxiliary appliances available.



DB design

## Lubrication and sealing

The bearings are lubricated with greases approved by the individual user.

At the wheel end the bearings are protected by a labyrinth seal made up of Fey lamellar rings.

Bearing maintenance and grease change should take place after 800 000 km.

**New: For the first time the SNCF use cylindrical roller bearings equipped with polyamide cages, mounted in spheroidal graphite cast iron housings.**

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