

Insert Bearings for Low-Floor Streetcars in Prague and Riga

FAG

Examples of Application Engineering

RFB 5 GB-D



Figure 1 · Skoda 15T “ForCity” low-floor streetcar in Prague

Skoda CZ

The new Skoda 15T “ForCity” low-floor streetcar is the latest design of modern streetcars from Škoda Transportation a.s, *Figure 1*.

A total of 260 streetcars of this type with 100% low-floor area will be in operation in Riga and Prague by 2018. They are replacing the approximately 500 high-floor streetcars from the 1960s and 1970s in these cities.

The three-section vehicles are equipped with two end bogies and two Jacobs-type bogies and a single-wheel drive which means they can brake individual wheels. The maximum speed is 60 km/h.

The low entrance height of only 320 mm above top of rail enables passengers to easily board and leave the streetcar. The generous size of the interior provides enough space for wheelchair users and baby buggies.

The 15T has 61 seats and space for 239 standing passengers, is 31,4 meters long and 2,46 meters wide.

Schaeffler Group Industrial supplies insert hub units for the independent wheels of all these vehicles.

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Technical Data 15T "ForCity"

Due to its well thought-out construction, the streetcar offers a generously sized interior, *Figure 2*.

Drive system	Single-wheel drive via wheel motor
Wheel arrangement	Bo´Bo´Bo´Bo´
Traction motor output	720 kW
Low-floor area ratio	100%

Bearing concept optimized to meet stress conditions

This bearing concept offers the following major advantages compared with conventional solutions, *Figure 3*:

- low space requirement with larger supporting width of the bearing arrangement
- integrated seals
- user-friendly and precise setting/ mounting
- high rigidity and favorable distribution of pressure by means of preloading the unit
- optimum transmission of forces due to form fit of collar during axial stress.

Insert hub units

Each unit has a pair of tapered roller bearings F-803904.04.TR2I-M32AX with seal and retaining ring, *Figure 4*. The dimensions are (d×D×B) 120 mm× 175 mm× 123 mm and 16 insert hub units are mounted in each vehicle. In close cooperation with the vehicle manufacturer, Schaeffler Group Industrial designed the bearings and provided comprehensive advice regarding the adjacent parts and the calibrating torque of the locknuts.

FAG Industrial Services (FIS)

FAG Industrial Services (FIS) was responsible for the lead mounting of the bearings. FIS is a wholly-owned subsidiary of the Schaeffler Group and its range of services includes everything from machine diagnosis, mounting services and tools to maintenance management. In conjunction with plant operators, FIS develops comprehensive solutions for maintenance, training, quality assurance and monitoring.



Figure 2 · Low-floor streetcar with generously sized interior

Skoda CZ

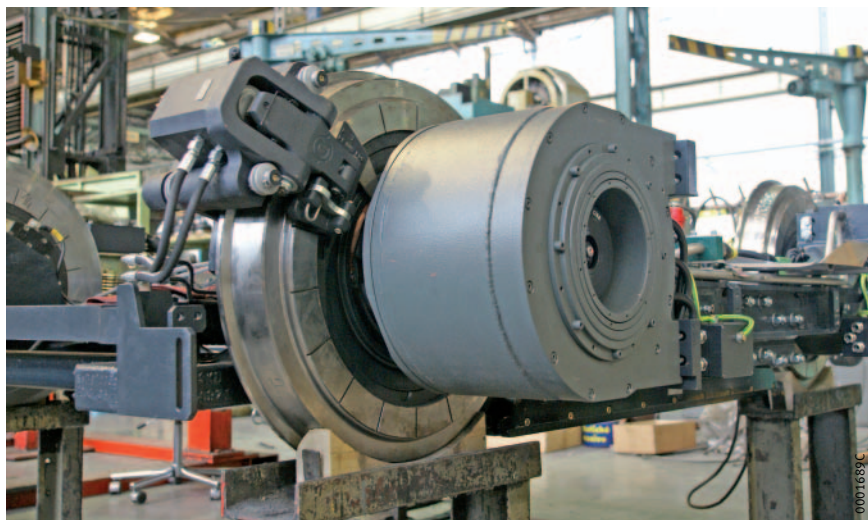


Figure 3 · Axletree of low-floor streetcar

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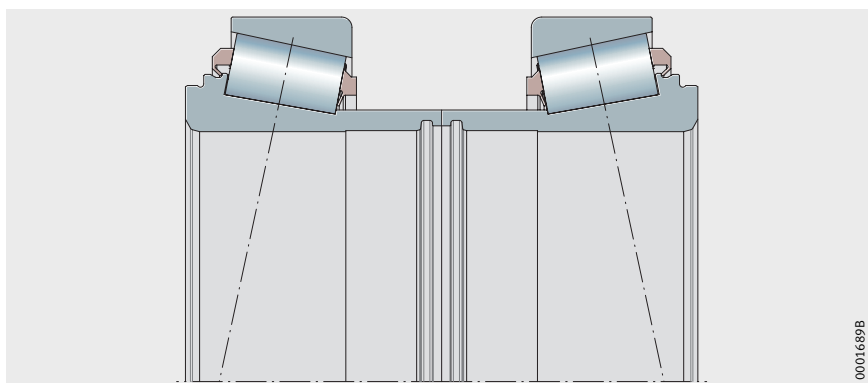


Figure 4 · Insert hub unit F-803904

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