

FAG Housing Unit with Relubrication Facility for Traction Motors



Modern drive concepts involve increasing requirements for high and rapid levels of availability.

To this end, Schaeffler offers integrated rolling bearing solutions for all manufacturers of electric drive concepts. Innovative products that are developed in-house in accordance with customer-specific perspectives and which offer cost-effective solutions.

For rotor bearing arrangements in electric drives, Schaeffler works in

consultation with customers to develop and manufacture complete housing units with relubrication facility that are individually designed in accordance with the application and can also be equipped with measurement technology.

Due to their compact, customer-specific construction, FAG housing units can be used not only in rail-based vehicles but also in traction drives for hybrid streetcar vehicles.

FAG housing units offer numerous advantages in the design, production, mounting and maintenance of rotor bearing arrangements.

Due to the significantly simplified design of the end shields, the work involved in the development of new drive concepts is also reduced. Thanks to their highly developed design, these bearing solutions are extremely easy to maintain.

SCHAEFFLER



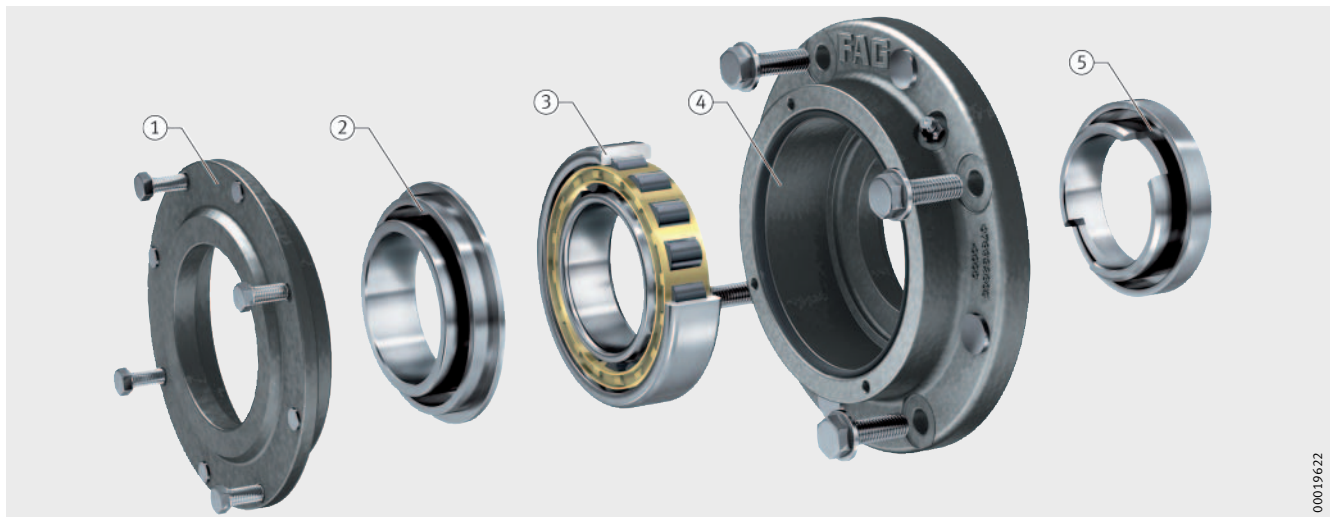


Figure 1 · Individual components of the FAG housing unit
 ① Cover, ② Labyrinth ring, ③ Bearing, ④ Housing, ⑤ Labyrinth ring

Since the housing units are designed as a modular concept, all the sub-assemblies are matched to each other, *Figure 1*. They form a closed unit that is normally mounted externally on the end shield. The rolling bearings are mounted directly on the shaft with a tight fit. A tight fit in the housing prevents rotation of the outer ring and reduces the formation of fretting corrosion.

The housing unit comprises four subassemblies, the rolling bearings must be ordered separately.

The rotor bearing arrangement must be matched to the particular operating and ambient conditions of an electric drive concept. Depending on the drive concept, widely differing bearing loads must be taken into consideration in order to achieve electric drives that are efficient, operationally reliable and cost-effective. The lubrication and sealing must be configured such that the bearings are neither undersupplied nor oversupplied with lubricant in any operating status.

Maintenance costs should be kept low. These requirements are fulfilled by the FAG housing units for traction motors.

Depending on the size, the housing units are manufactured as follows:

- spheroidal graphite cast iron EN-GJS-400-15 or
- steel with a minimum tensile strength R_m of 400 N/mm².

Due to the customer-specific concept, the housing units can be matched to the specific geometry of the adjacent construction without significant additional work. They can be produced individually for different standard bearing types and series.

As a result, there are no problems in using either standard bearings or current insulated bearings in order to prevent damage caused by the passage of current, *Figure 2* to *Figure 4*.

For special bearings, special solutions are also available that allow continued use of existing products.

The housing units developed for grease lubrication have an appropriate relubrication facility, thus reducing the costs and work associated with maintenance. Special designs with a container for collecting used grease are also possible and can be adapted to the appropriate customer requirements.

Further customer-specific modifications, such as sensors or measurement technology, can also be realised without major outlay.



Figure 2 · Cylindrical roller bearing

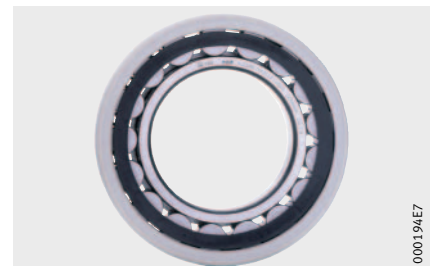


Figure 3 · Current insulated bearing



Figure 4 · Ceramic bearing (hybrid cylindrical roller bearing)

Schaeffler Technologies AG & Co. KG

Sector Management Rail
 Georg-Schäfer-Straße 30
 97421 Schweinfurt (Germany)
 Phone +49 9721 91-0
 Fax +49 9721 91-3788
 E-mail rail_transport@schaeffler.com
 Internet www.schaeffler.de/railway