



## Dismounting of rolling bearings Thermal dismounting

# Dismounting of rolling bearings

## Dismounting methods

In order to prevent damage during the dismounting of bearings, various dismounting methods are used depending on the bearing size and type of application that facilitate the reuse of components. In general, a distinction is made in the dismounting of bearings between mechanical, thermal and hydraulic methods. Before dismounting is actually carried out, the mounting drawings and any instructions for mounting and dismounting must be carefully checked. In case of doubt, the Schaeffler expert team is available to provide advice and assistance.

## Thermal dismounting

In thermal dismounting, the bearing ring to be dismounted is heated within a very short space of time, leading to its expansion. As a result, the fit on the bearing seat is neutralised and any possible adhesion as a result of fretting corrosion is overcome.



Heating of the bearing ring should not be carried out using a direct flame, since this can cause damage to the components.

## Heating rings

Heating rings made from light metal with radial slots can be used for dismounting the inner rings of cylindrical roller bearings that have no ribs or only one rigid rib, *Figure 1*. The rings are heated on an electric heating plate, depending on their tight fit or interference, to between +200 °C and +300 °C, pushed over the bearing ring to be removed and clamped in place using the grips. Once the press fit on the shaft has been neutralised, both rings are removed together.



After removal, the bearing ring must immediately be released from the heating ring in order to prevent overheating.



*Figure 1*  
Heating ring

Heating rings are particularly advantageous for the occasional extraction of medium-sized bearing rings. Each bearing size requires a specific heating ring.

## Medium frequency technology

With the aid of FAG devices using medium frequency technology, it is possible to heat very large bearings and components of shrink fit connections by inductive means in order to achieve loosening.

The FAG medium frequency heating device comprises the medium frequency generator and an inductor. Depending on the application, this can be of a flexible or rigid design. The flexible version is similar to a cable. It must be ensured in this case that the winding is applied directly to the component with fit.

Where a rolling bearing has a tight fit on a shaft, for example, the inductor must be applied directly to the inner ring.

Through energy-efficient heating, the workpiece to be loosened is heated very quickly and undergoes expansion, so the press fit can be loosened. Flexible inductors are suitable for workpieces of various sizes and various shapes and can be used for long periods at heating temperatures up to +150 °C.



*Figure 2*  
Dismounting of bearing inner rings  
using flexible inductor

In the batch dismounting of identical components such as wheelset bearings on rail vehicles, flexibility is less important than reduced setup times and increased process reliability. Rigid inductors are suitable for this task. In this design, the coil is fitted in a housing matched to the workpiece and can thus be placed quickly and easily in the heating zone. Rigid inductors are also suitable, in contrast to the flexible variant, for small components.



The devices are designed for the specific application. Please contact the application experts at Schaeffler.

# Dismounting of rolling bearings

- Advantages Advantages in the loosening of shrink fit connections:
- batch dismounting of bearing rings and labyrinth rings
  - rapid dismounting of gears and couplings
  - simple heating of large and heavy components (such as machine supports, housings, shafts, ...).



*Figure 3*  
Dismounting of bearing inner rings  
of wheelset bearings (rail vehicles)  
using rigid inductor

**Further information** ■ TPI 217, FAG Medium Frequency Heating Devices.

**Further information** This PDF file is part of “medias” (medias.schaeffler.de). Please also take note of all other information provided there (Internet pages, PDF files), where this information is applicable to your task.?

**Schaeffler Technologies  
AG & Co. KG**

Industriestraße 1–3  
91074 Herzogenaurach  
Germany  
Internet [www.schaeffler.de/en](http://www.schaeffler.de/en)  
E-mail [info.de@schaeffler.com](mailto:info.de@schaeffler.com)

In Germany:

Phone 0180 5003872

Fax 0180 5003873

From other countries:

Phone +49 9132 82-0

Fax +49 9132 82-4950

**Schaeffler Technologies  
AG & Co. KG**

Georg-Schäfer-Straße 30  
97421 Schweinfurt  
Germany  
Internet [www.schaeffler.de/en](http://www.schaeffler.de/en)  
E-mail [faginfo@schaeffler.com](mailto:faginfo@schaeffler.com)

In Germany:

Phone 0180 5003872

Fax 0180 5003873

From other countries:

Phone +49 9721 91-0

Fax +49 9721 91-3435

Every care has been taken to ensure the correctness of the information contained in this publication but no liability can be accepted for any errors or omissions. We reserve the right to make technical changes.

© Schaeffler Technologies AG & Co. KG

Issued: 2017, September

This publication or parts thereof may not be reproduced without our permission.

MH 1 GB-D