Bearing Solutions and Services for Thermal Power Plants
The Schaeffler Group is a leading integrated global supplier to the automotive and industrial sectors. The company stands for top quality, outstanding technology, and strong innovative ability. Its precision components and systems for engines, transmissions, and chassis applications as well as rolling and plain bearing solutions for a wide range of industrial applications make the Schaeffler Group a key contributor to "mobility for tomorrow." The Industrial division supplies components and systems for around 60 different industrial sectors via its worldwide organization with market proximity and its application support service. The range includes miniature bearings only a few millimeters wide through to larger-size bearings with an outside diameter of several meters. In close collaboration with power plant operators, we have developed an extensive product range. INA and FAG standard bearings and numerous customer-specific special solutions have proven effective under the most extreme operating conditions – even in locations in coal-fired power plants where bearings are typically used, such as in beater wheel mills, tube and bowl mills, and air preheaters.

As one of the world's largest rolling bearing manufacturers, Schaeffler is a partner for all leading manufacturers and power plant operators. Our bearing solutions and services increase the operational reliability and performance capacity of machinery and processes. Expert technical consultation and an extensive distribution network around the world help us make a contribution to reducing overall costs.

FAG tapered roller bearings
Single-row FAG tapered roller bearings can support high radial loads, axial loads on one side, and combined loads. They have a broad range of applications. When combined, they balance loads favorably thanks to their effective bearing spacing and ensure precise and rigid shaft guidance. Tapered roller bearings can be adjusted and dismantled, which makes mounting easy.

FAG spherical roller bearings
Spherical roller bearings are self-retaining double-row units. They compensate shaft deflections and misalignments. All relevant sizes are available in X-life design – in certain applications, a smaller design of bearing arrangement can therefore be used if necessary. Sealed FAG spherical roller bearings are also available and have the same load carrying capacity as their counterparts without seals thanks to their innovative design.

Split FAG spherical roller bearings
Split spherical roller bearings can be installed directly instead of conventional bearings with a corresponding adapter sleeve – the dimensions are identical. Replacing a standard bearing with a split bearing considerably reduces downtimes during bearing replacements and installation costs. In the long run, this type of bearing is a cost saver, as upcoming bearing replacements can be carried out quicker.
Pumps in power plants are essential components that ensure water circuits function. Boiler feed pumps, cooling water pumps, condensate pumps and circulation pumps, for example, can be found in all the important main processes. There are various solutions for bearing support designs in pumps. Thanks to our extensive product range, Schaeffler can configure any type of bearing design. The rolling bearings that are normally used in pumps range from standard deep groove ball bearings, and cylindrical and tapered rolling bearings through to rolling bearings with an angular adjustment facility, and sealed angular contact ball bearings. With temperature-resistant sheet steel cages and low-friction HRS seals, X-life designs are particularly robust, low-maintenance, and durable.

In vertical roller mills, clamping, tilting, and axial loads that act on the grinding roll, produce high radial and axial loads. These loads can be supported by a cylindrical roller bearing combined with a spherical roller bearing, or a tapered roller bearing and a radial bearing, as is the case in vertical roller mills. The outer spacer is mounted axially so that the bearing and the correct axial internal clearance are achieved. radial and axial loads in preheaters are most commonly supported by cylindrical roller bearings, which are installed in individual plummer block housings. The seating arrangement between the bearing and the housing is adjusted as required as a result of the axial play by a spherical ground in the bearing. The axial preload of the roller bearing at the bore depends on the design and is used to ensure bearing preload. Ideally, to ensure optimal radial loads at the bearing on the grinding roll, the bearing on the grinding roll is used in axial arrangement. High static load ratings, high speed, load capacity, and low frictional forces are important. FAG low-friction spherical roller bearings are best suited to meet such requirements. High static load ratings, high speed, load capacity, and low frictional forces are important.

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Bearing supports in fans operate under extremely harsh conditions including hot or flue gases, particle contamination, and high pressure operation. Schaeffler’s solution to these challenging conditions comes for instance in the form of various plummer block housing units with corresponding seals and connection facilities for lubrication supply and rolling bearing monitoring. FAG 222/223 series spherical roller bearings are available in X-life quality for bearing supports in fans. Moreover, we offer large angular contact ball bearings, cylindrical roller bearings, as well as axial deep groove ball bearings for blade adjustment in axial fans for this application.

PUMPS

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THE PERFECT SOLUTION FOR EVERY REQUIREMENT
Bearing mounting par excellence

Correctly mounting bearings – a prerequisite for precision and performance

Using the correct tools for reaming and demounting rolling bearings is a major prerequisite for ensuring a long bearing operating life. Schaeffler provides you with support by means of professional mounting and demounting tools, and mounting training courses. We also offer to do the mounting for you. A team of Schaeffler experts has undergone specific training will ensure your application is done right on site.

Mounting services in detail

- Mounting and demounting rolling bearings of all kinds
- Acceptance inspection of the counterparts (shafts and housings)
- Maintenance and inspection of bearing supports
- Support in determining causes for bearing failure
- Advisors and instructors...staff when rolling bearings are installed by the customer
- Using modern reconditioning tools, for example heating with medium frequency generators in combination with fluid-based lubrication

Savings tip: A practical example

It is especially shorter downtimes that have a cost-reducing effect when installing split spherical roller bearings. In this specific case, a globe rolling operating company installed a split FAG spherical roller bearing for the first time. Downtimes for replacing conventional standard bearings could now be reduced from 22 hours to 3 hours. The overall costs for replacing the bearing were therefore reduced by approximately 80 per cent (saving: 151,000 euros). Roll bearing reconditioning – a cost-effective alternative to new products

Schaeffler reconditions rolling bearings irrespective of the manufacturer and without confining itself to its own product portfolio. Reconditioning is carried out in the same manner worldwide – identical processes and guidelines are applied. After it comes to Schaeffler branded gauges, we work according to the original drawings. We exclusively use original components and replacement parts for all bearings. Thanks to our extensive expertise in rolling bearings, the reconditioning standard is of high-quality, ensuring each reconditioned bearing to its original condition.

- Acceptance inspection of the counterparts (shafts and housings)
- Reconditioning of rolling bearings
- Reconditioning of mounting tools
- Reconditioning of rolling components
- Condition monitoring – how to avoid unplanned downtimes

We offer services and systems for condition monitoring worldwide. Depending on your requirements, our experts do not only use vibration measurement methods to conduct our basic methods for torque or force measurements, multi channel systems for modal analysis, thermographic cameras and endoscopes.

Lubrication – a decisive factor for bearing performance and operating life

Incorrect lubrication is the most common reason for roller bearing failures. By greasing the bearings with Arcanol products, which have been tested in practice and in-vitro laboratories, we lay the foundation for our bearings to ensure that they have a long operating life and have maintenance.

Let us help you.

www.schaeffler.com/X-life

Schaeffler service: How can we help you?

A high level of system availability is a decisive factor for the cost-effectiveness of power plants. Schaeffler provides a comprehensive range of customer-specific services to power plant operators:

- Mounting and demounting of rolling bearings
- Reconditioning of rolling bearings
- Rolling bearing lubrication and sweating lubricants
- Condition monitoring of rotating components

Squeeze-film bearings

Spherical roller bearings

Axial spherical roller bearings

Angular contact ball bearings

Deep groove ball bearings

Plain bearings

Elgoglide high-performance sliding layers, and metal polymer composite plain bearings.

Spherical roller bearings

Groove ball bearings

Angular contact ball bearings

Plain bearings as well as plain bushes with Elgotex or Schaeffler produces and distributes a variety of high-quality plain bearings under the INA brand. These bearings with their simple design, high resistance and maintenance, are available in single-row and double-row designs, as well as sealed and unsealed. Thanks to their low frictional losses, deep groove ball bearings can be used for high-speeds.

Deep groove ball bearings are versatile, self-retaining bearings. These bearings with their simple design, high resistance and maintenance, are available in single-row and double-row designs, as well as sealed and unsealed. Thanks to their low frictional losses, deep groove ball bearings can be used for high-speeds.

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Global expertise – local knowledge – optimum performance for the customer

Schaeffler, a strong partner to industry, has extensive expertise in over 60 sectors. In order to bundle this knowledge and make it available worldwide, our experts in the different sectors are connected via one network, the Global Technology Network. This is how we ensure that industry-related knowledge can be accessed from all over the world.

A key component of this concept is our Schaeffler Technology Centers. Highly qualified engineers ensure that technical expertise is available in the different regions. Currently, there are already 27 local Schaeffler Technology Centers worldwide. They are frequently in contact with Schaeffler experts all over the world.

Our customers greatly benefit from this: Schaeffler’s bundled expertise is made available by the local Schaeffler sales engineer who is constantly exchanging information with the network of experts. This way, you always receive the best possible solution from anywhere in the world.

www.global-technology-network.com

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