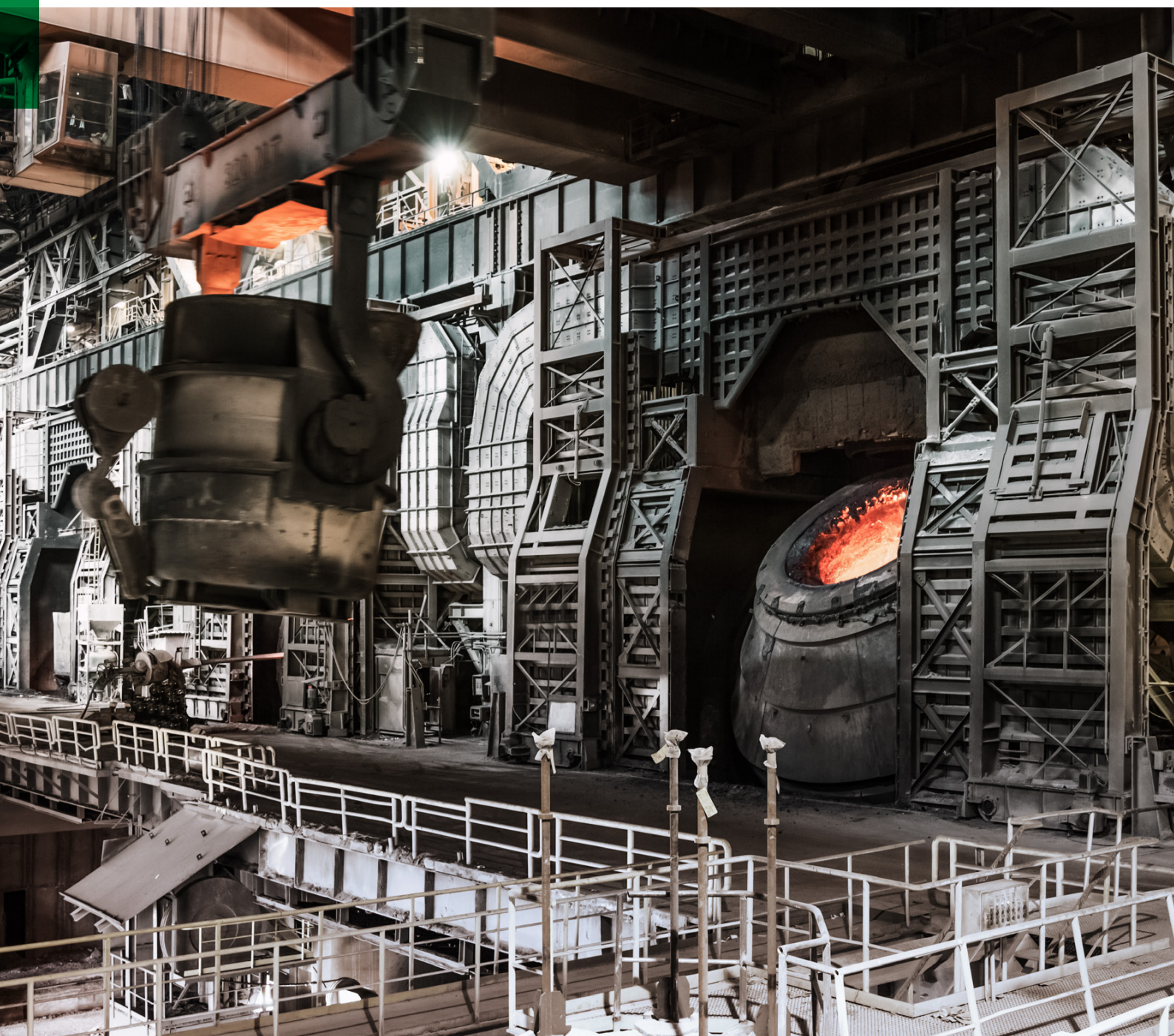
SCHAEFFLER

We pioneer motion

Schaeffler Products and Services for the Metals Industry



Schaeffler – Partner to the Industry

Schaeffler is a partner of leading manufacturers and operators in the metallurgical production and processing industry. Our broad range of products and services enables us to help our customers worldwide optimize their plant processes.

Successful together
The harsh operating conditions in metallurgical production and processing impose tough demands on the performance and operational safety of all the components used. Thanks to years of close collaboration with our customers and extensive shared experience, we have a thorough understanding of the special challenges the raw metal processing industry presents. That means we are able to offer solutions that always utilize state-of-the-art technologies while keeping the needs of the industry in mind.

With Schaeffler, companies can also rely on:

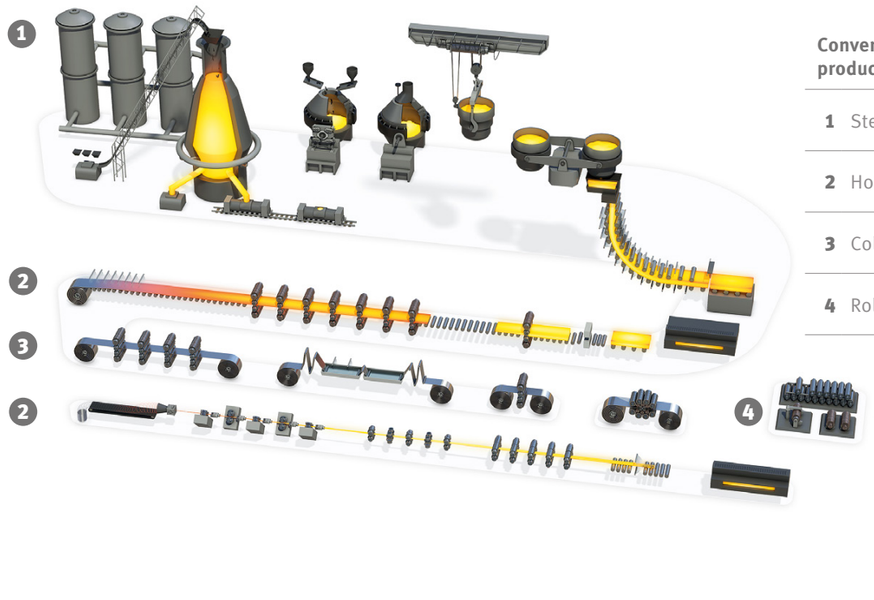
- A global network of experts
- Broad-based expertise with bearings
- User-friendly engineering tools in medias
- Sustainable product concepts
- Comprehensive digital solutions and an application-specific service portfolio

Benefits offered by Schaeffler in the metal industry at a glance

Top supplier to plant manufacturers and operators	End-to-end **expert knowledge**	Leader in **wireless machine diagnostics**	Forward-looking with **smart automatic lubrication**

Challenges in the Steel Industry

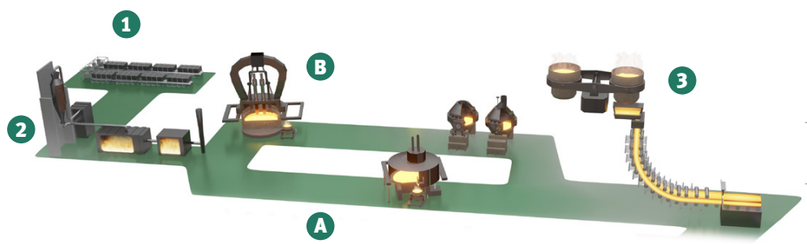
Intensive dust formation, significant temperature variations, high shock or impact loads – these are all harsh conditions that are prevalent in the steel industry. Our solutions make the steel production processes more efficient – every step of the way. Alongside a comprehensive suite of bearings that keep machines running, Schaeffler also offers products and services that extend the product lifecycle. This requires in-depth understanding and familiarity of the steel production process.



Conventional steel production processes

1	Steel production
2	Hot rolling
3	Cold rolling
4	Roll shop

The path to sustainability
Solutions for energy-efficient, resource-saving, and carbon-neutral production are extremely challenging for the metals industry. On the one hand, steel is a 100% recyclable material and paves the way to the circular economy. On the other hand, it must be possible to cost-efficiently manufacture sustainably produced metal using renewable energy. Direct-reduction plants using green hydrogen is considered to be the clean technology of the future because it will enable a 95% reduction in CO_2 emissions. The resulting “green steel” is a key component in designing a more sustainable metals industry, and it also has a positive impact on the other industries where it is used.



Green steel production with different route

1	Electrolyzer plant
2	Direct reduction
A	Route A: Steel production with electrical arc furnace
or	
B	Route B: Steel production with open bath furnace and converter
3	Ladle turret and continuous casting machine*

*Production steps from here follow the conventional process

Schaeffler Products and Services for Metallurgical Production and Processing

Our high-quality bearings are designed for the specific challenges created by heat, dirt, scale, and cooling water as well as high operating and impact loads. As a leading roller bearing manufacturer, we work to support metallurgical production and processing with comprehensive solutions, while also offering a portfolio of innovative products and services across a bearing's lifecycle.

Your Advantages

- Decades of experience
- Proven quality
- High level of operational safety
- Long bearing life
- High load-carrying capacity and stability
- Reduced maintenance requirements
- Easy to install and remove
- Temperature-resistant
- Suitable for heavy impact loads
- Comprehensive portfolio of digital solutions and application-specific services

Schaeffler's rolling bearings for the metals industry

Tapered roller bearings – four-row	Cylindrical roller bearings – four-row	Tapered roller bearings – double-row	Spherical roller bearings	Spherical roller bearings – split
				
Angular contact bearings	**Cylindrical roller bearings – full-complement**	**Spherical plain bearings**	**Back-up rollers**	**Housings**
				

Schaeffler's Lifetime Solutions for the metals industry

Mounting

- Laser-EQUILIGN2
- MF-GENERATOR
- HEATER
- Hydraulic Pumps
- Hydraulic nuts HYDNUT
- Mechanical Tools

Lubrication

- OPTIME C1
- CONCEPT1–8
- ARCANOL greases

Monitoring

- ProLink CMS
- SmartCheck
- OPTIME Condition Monitoring
- Predict- and Power-Adapt
- GreaseCheck

Remanufacturing

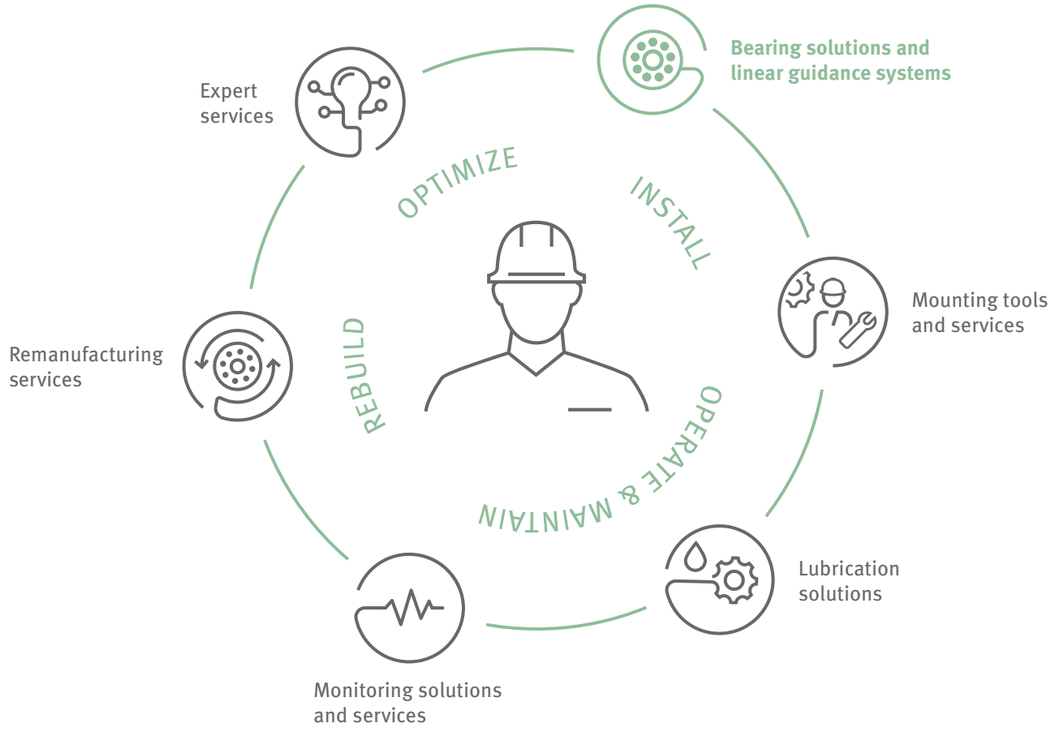
- Diagnosis
- Maintenance
- Servicing
- Overhaul

Expert services

- Mounting
- Vibration measurements
- Remote condition monitoring
- Endoscopies
- Training

Value at Every Stage of the Lifecycle

Schaeffler engineers solutions with an extended lifecycle. With over 100 years of experience in the bearing business, expertise goes into every stage of the solution lifetime.



Our customers are at the center of everything we do. No matter what industry they come from: we equip them with our innovations for pioneering motion. From bearing solutions to complete linear guidance systems, we pioneer motion for the industry of the future.

What's more, we create innovations to extend the lifetime of these solutions. And with over 100 years in the bearing business, we have earned the experience it takes to add value to every stage of the solution lifetime.

From the moment one of our solutions is installed to how it is operated and maintained: Schaeffler has a full portfolio of solutions and services to support maintenance teams and managers. Called Schaeffler Lifetime Solutions, the portfolio includes mounting tools and services as well as solutions and services for condition monitoring and lubrication.

But the lifetime does not end there. Schaeffler also offers remanufacturing services to extend the lifecycle of our customers' bearings and expert services to optimize their use. And that's how we add value over the lifetime for our customers.

Bearing Solutions for the Metals Industry

As one of the world's largest rolling bearing manufacturers, Schaeffler is an important partner for all leading system manufacturers and operators for the metals industry. Based on our in-depth industry knowledge, we provide our customers with optimum bearing solutions for their applications – for maximum reliability even under the harshest ambient conditions.

Bearing solutions for the main applications in the Metals industry

	Metallurgical production			Hot rolling			Cold rolling			
	Converter	Ladle turret	Continuous casting machine	Roughing stand	Drive spindle	Finishing train	Section mill	Tandem rolling mill	Cold rolling mill	Multi-roll mill
1 Four-row cylindrical roller bearings					●			●	●	●
2 Double- and four-row tapered roller bearings					●		●		●	●
3 Tapered roller bearings										
4 Axial tapered roller bearings					●		●	●		
5 Spherical roller bearings	●			●				●		
6 Split spherical roller bearings	●									
7 Sealed spherical roller bearings				●						
8 Axial spherical roller bearings		●			●		●	●	●	●
9 Cylindrical roller bearings	●	●								
10 Full-complement cylindrical roller bearings				●						
11 Split cylindrical roller bearings				●		●				
12 Deep groove ball bearings								●	●	●
13 Angular contact bearings								●		●
14 Spherical plain bearings	●	●								
15 Needle roller bearings				●						
16 Back-up rollers										●
17 Plummer block housings	●			●						

Four-row cylindrical roller bearings ›

For maximum load carrying capacity and speed
Four-row cylindrical roller bearings can handle very heavy and exclusively radial loads, thanks to the cylindrical rolling elements' large contact area, the large number of rollers, and a rigid design. The bearings also have a high runout accuracy and are suitable for high speeds.

Learn more

Double- and four-row tapered roller bearings ›

Designed for combined loads
Multi-row tapered roller bearings consist of solid rings and multiple tapered roller assemblies arranged on an incline with a cage. Specifically designed to support combined loads, they are ideal for heavy radial and axial loads in both directions. Multi-row tapered roller bearings can also be disassembled.

Learn more

Tapered roller bearings ›

Bearings with optimum load distribution
Heavy-duty, reliable, and energy efficient: Tapered roller bearings balance loads effectively due to their bearing spacing and ensure precise and rigid shaft guidance. They have a broad speed range and are easy to adjust, disassemble, and assemble.

Learn more

Bearing solutions for other applications in the Metals industry

	Laying head	Tubular strander	Ring rolling mill	Coiler	Roller tables	Gear units	Electric motors	Fans	Pumps
1 Four-row cylindrical roller bearings									
2 Double- and four-row tapered roller bearings									
3 Tapered roller bearings				●		●			●
4 Axial tapered roller bearings									
5 Spherical roller bearings		●	●		●	●		●	●
6 Split spherical roller bearings								●	
7 Sealed spherical roller bearings					●				
8 Axial spherical roller bearings			●	●					
9 Cylindrical roller bearings	●	●	●	●		●	●	●	●
10 Full-complement cylindrical roller bearings									
11 Split cylindrical roller bearings									
12 Deep groove ball bearings						●	●	●	●
13 Angular contact bearings	●			●		●			●
14 Spherical plain bearings									
15 Needle roller bearings									
16 Back-up rollers			●						
17 Plummer block housings								●	

Axial tapered roller bearings ›

For screw-down mechanisms
Axial tapered roller bearings for screw-down mechanisms are a special version of single-direction axial tapered roller bearings. They can handle extremely heavy axial loads while leaving the chock space for angular motions. They are extremely low friction and reduce screw-down forces.

Learn more

Spherical roller bearings ›

For special loads and long service life
Designed for the highest loads, Schaeffler's spherical roller bearings are made for applications in which high stresses occur and where shaft deflections or misalignments have to be compensated. In every area of application, they are distinctive for their high performance and reliability.

Learn more

Split spherical roller bearings ›

For short downtime and easy maintenance
Split spherical roller bearings shorten downtimes in the event of bearing replacement and massively reduce the associated costs. They are used where the replacement of unsplit bearings would require time-consuming additional work, such as the dismantlement of drive systems or removal of gear.

Learn more

Sealed spherical roller bearings ›

For a longer operating life and smaller carbon footprint
The sealed versions of spherical roller bearings are extremely sustainable and virtually maintenance free. They cut grease consumption by up to 80%, which in turn significantly reduces CO_2 emissions. Four different sealing concepts are employed, depending on the series and application.

Learn more

Axial spherical roller bearings ›

For heavy radial and axial loads
Axial spherical roller bearings are single-row roller bearings with an angular adjustment capability. They consist of solid shaft and housing locating washers and asymmetrical barrel rollers with cages that hold the roller and cage assembly together with the shaft locating washer.

Learn more

Cylindrical roller bearings ›

For heavy radial and axial loads
Cylindrical roller bearings can withstand extremely heavy radial loads and also handle axial forces if they are used as support or locating bearings. Radial loads are transferred via the race, while axial loads are transferred via the rolling-element end faces and ribs.

Learn more

Angular contact bearings ›

For combined radial and axial loads
Low-noise and durable, even with varying forces - this is what distinguishes angular contact ball bearings in the X-life design. They optimally support different, simultaneously acting loads and transfer them from one raceway to the other.

Learn more

Spherical plain bearings ›

Maintenance-free and environmentally friendly with long service life
Spherical plain bearings feature low co-efficients of friction and low wear of the sliding surfaces. At the same time, they have excellent sealing. The result is lengthy service lives, no maintenance and thus a substantial reduction of cost over lifetime.

Learn more

Needle roller bearings ›

High load capacity in a small size
Needle roller bearings are rolling bearings with a low radial section height and very high load-carrying capacity that are used as non-locating bearings. These bearings comprise machined outer rings, needle roller and cage assemblies, and removable inner rings. This means that they are available with or without an inner ring, depending on the application.

Learn more

Full-complement cylindrical roller bearings ›

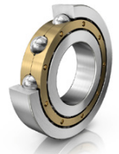
For continuous casting machines
The bearings in continuous casting machines need to continuously withstand high loads and shocks. They are also subject to extremely high temperatures and cooling water. Full complement cylindrical roller bearings, which are part of Schaeffler's CoCaB (Continuous Caster Bearing) program, are ideal for these conditions.

Learn more

Split cylindrical roller bearings ›

For short downtime and easy maintenance
Both the inner and outer rings of split bearings are split in half. For each row of rolling elements, there are two roller and cage assemblies that are held in place by cage segments. This makes it easy to replace the bearing in parts or as a whole – saving costs.

Learn more



Deep groove ball bearings ›

For low-friction, reliable operation
Deep groove ball bearings are versatile, self-retaining bearings. These bearings, with a simple design, high resistance, durability, and low maintenance, are available in different variants: single-row or double-row, open or sealed design.

Learn more

Back-up rollers ›

Ready-to-mount bearings for shafts
Back-up rollers are special double- or multi-row needle or cylindrical roller bearings with a thick-walled, profiled outer ring made of steel. Mounted on shafts or studs supported on an even mating track, they are ideal for transmitting heavy radial loads that act on the outside surface.

Learn more

Plummer block housings ›

For a balanced distribution of loads
The Schaeffler portfolio offers a wide selection of standard housings for a large number of different applications. They can also be specially configured – for example, with regard to the desired bearing type, lubrication, or sealing of the housing.

Learn more

The Schaeffler CoCaB program ›

The bearings in continous casting machines need to continiuously withstand high loads and shocks. They are also subject to extremely high temperatures and cooling water. Schaeffler specifically developed the CoCaB (Continuous Caster Bearing) program with these requirements in mind. The following bearings are available through this program:

- Needle roller bearings
- Spherical roller bearings
- Cylindrical roller bearings

Learn more

Lifetime Solutions for the Metals Industry

While bearing solutions are key to a smooth operation, likewise are maintenance solutions. Schaeffler's Lifetime Solutions support machines and bearings with all the tools maintenance teams or plant managers might need. In addition to offering products, Lifetime Solutions offers expert services and training programs.

Learn more about
Schaeffler Lifetime Solutions ›

Schaeffler Lifetime Solutions

Keep your machines rolling

Mount ›

Get your machines up and running with our tools, services, and solutions for mounting, dismounting and alignment

Our full array of mechanical, hydraulic, thermal and alignment tools will help you get your machines up and running quickly and smoothly – and minimize such bearing damage. Highlight solutions include flexible induction heating devices for components and bearings of all sizes as well as the LASER-EQUILIGN2 for easy machine alignment.

Learn more

Monitor ›

Eliminate unplanned downtime by always knowing what condition your machines are in

From award-winning technologies for wireless condition monitoring like OPTIME Condition Monitoring to our multi-channel condition monitoring solution ProLink CMS to SmartCheck, the monitoring solutions for production-critical machines: our portfolio provides answers – and is simple to implement and operate.

Learn more

Lubricate ›

Keep your machines running smoothly with the right machine lubrication solution for every application

Machine lubrication is often complex and time-consuming. Our portfolio of automatic lubricators from the CONCEPT line and our OPTIME Smart Lubricator paired with our range of ARCANOL industrial lubricants promise to bring the flow into your processes. So you can reduce downtime and lubricant waste.

Learn more

Lifetime Solutions for the main applications in the metals industry

		Metallurgical production			Hot rolling			Cold rolling				
		Converter	Ladle turret	Continuous casting machine	Roughing stand	Drive spindle	Finishing train	Section mill	Tandem rolling mill	Cold rolling mill	Multi-roll mill	
1	ProLink CMS	●				●	(●)	●	●	●	●	●
2	SmartCheck											
3	OPTIME Condition Monitoring											
4	Predict- and Power-Adapt							●	●			
5	GreaseCheck	●										
6	OPTIME C1											
7	CONCEPT1–8											
8	ARCANOL greases	●	●	●	●			●	●	●	●	
9	Laser-EQUILIGN2											
10	MF-GENERATOR	●	●	●	●			●	●	●	●	
11	HEATER		●	●								●
12	Hydraulic Pumps											
13	Hydraulic Nuts HYDNUT											
14	Mechanical tools						●					
15	Remanufacuring	●		●	●			●		●	●	●

Lifetime Solutions for other applications in the metals industry

		Laying head	Tubular strander	Ring rolling mill	Coiler	Transfer crane/ carriage	Roller tables	Gear units	Electric motors	Fans	Pumps	Roll shop	
1	ProLink CMS	●	●	●	●	●	●	●	●	●	●		
2	SmartCheck							●	●	●	●		
3	OPTIME Condition Monitoring						(●)	●	●	●	●		
4	Predict- and Power-Adapt				●		●		●	●	●		
5	GreaseCheck												
6	OPTIME C1								●	●	●		
7	CONCEPT1–8								●	●	●		
8	ARCANOL greases				●	●			●	●	●	●	
9	Laser-EQUILIGN2								●				
10	MF-GENERATOR				●							●	
11	HEATER	●				●			●	●	●	●	
12	Hydraulic Pumps					●				●	●	●	
13	Hydraulic Nuts HYDNUT					●				●	●	●	
14	Mechanical tools	●				●	●	●	●	●	●	●	
15	Remanufacuring				●							●	

Application-Specific Solutions

Converter
Where iron becomes steel

Tasks in the metals industry
- Convert pig iron to crude steel
- Reduce carbon and nitrogen content
- Add alloying elements

Challenges
- High loads and process-related misalignment of trunnion bearings
- Shock loads, heat, and dirt
- Lubrication under mixed-friction conditions

Schaeffler's solutions
- Application-specific split and unsplit spherical roller bearings for trunnion bearings
- Application-specific housings
- Maintenance-free spherical plain bearings for vessel mounting and torque supports
- Condition monitoring (GreaseCheck, ProLink CMS), ARCANOL lubricants, and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units

Ladle Turret
Keeps steel production flowing

Tasks in the metals industry
- Constant operation of the continuous casting machine by loading it with liquid steel
- Turning and lifting the ladles between the casting position and tapping position

Challenges
- Heat
- Dirt
- Limited design envelope

Schaeffler's solutions
- Low-maintenance and maintenance-free large spherical plain bearings
- ARCANOL lubricants
- OPTIME Ecosystem for auxiliary units

Continuous Casting Machine
A hot ride at low speeds

Tasks in the metals industry
- Cast the liquid steel
- Produce slabs, billets, and blooms

Challenges
- Heavy loads
- Low speeds
- Heat, dirt, and scale
- Cooling water

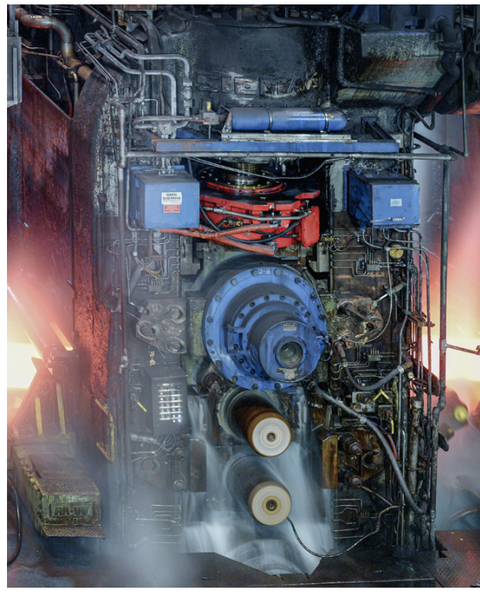
Schaeffler's solutions
- Rolling bearings for strand guide rolls:
  - Needle roller bearings
  - Spherical roller bearings (optionally sealed)
  - Full-complement cylindrical roller bearings (optionally sealed)
  - Water-cooled housings combined with full-complement split cylindrical roller bearings
- Remanufacturing (CO_2 reduction)
- ARCANOL lubricants
- OPTIME Ecosystem for auxiliary units

Roughing Stand, Finishing Train, and Coiler
Heat, dust, and shock load in reverse mode

Tasks in the metals industry
- Roll slabs
- Upcoiling of finished strip

Challenges
- Heavy loads
- Shock loads and working in reverse mode
- Contaminants like scale and dust
- Heat
- Cooling media

Schaeffler's solutions
- Four-row tapered roller bearings (optionally sealed)
- Axial tapered roller bearings (optionally sealed)
- Axial spherical roller bearings
- Condition monitoring (ProLink CMS), ARCANOL lubricants, tools, and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units

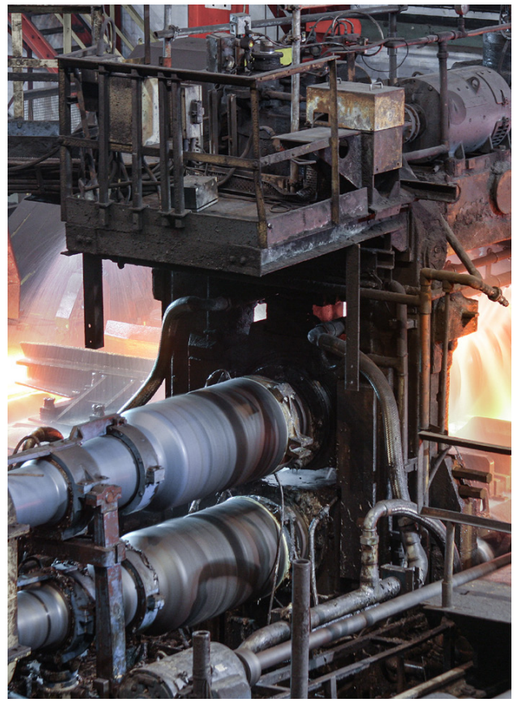


Drive Spindle
Drive for the hot rolling process

Task in the metals industry
- Drive the work rolls via joint shafts or joint spindles

Challenge
- Forged joint flanges on the shafts require split bearing versions

Schaeffler's solutions
- Single- and double-row split cylindrical roller bearings for easy bearing replacement
- Mounting tools



Section Mill
Shapes semi-finished products

Task in the metals industry
- Roll billets and blooms to make supports, section steel, and bar steel

Challenges
- Heavy loads and shock loads
- Dirt, heat, cooling media

Schaeffler's solutions
- Four-row cylindrical roller bearings and four-row tapered roller bearings, optionally with wear-resistant heat treatment by carbonitriding
- Double-row angular contact bearings
- (Axial) spherical roller bearings
- Condition monitoring (ProLink CMS), ARCANOL greases, and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units

Tandem Rolling Mill
Higher surface quality thanks to higher dimensional accuracy

Tasks in the metals industry
- Produce application-specific material properties
- Improve surface quality

Challenges
- High rolling forces and speeds
- High dimensional accuracy

Schaeffler's solutions
- Four-row cylindrical roller bearings with optional coating
- Double- and four-row tapered roller bearings, optionally sealed
- Angular contact bearings and deep groove ball bearings as axial guidance bearings
- Condition monitoring (ProLink CMS) and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units

Cold Rolling Mill
Precision work on the surface structure under a changing load

Task in the metals industry
- Improve flatness and improve surface structure through cold rerolling

Challenges
- Varying strip speeds
- Changing loads
- Accuracy of product geometry

Schaeffler's solutions
- Four-row cylindrical roller bearings
- Double- and four-row tapered roller bearings, optionally sealed
- Angular contact bearings and deep groove ball bearings as axial guidance bearings
- Condition monitoring (ProLink CMS) and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units

Multi-Roll Mill

Precision rolling method thanks to optimal bearing arrangement

Task in the metals industry

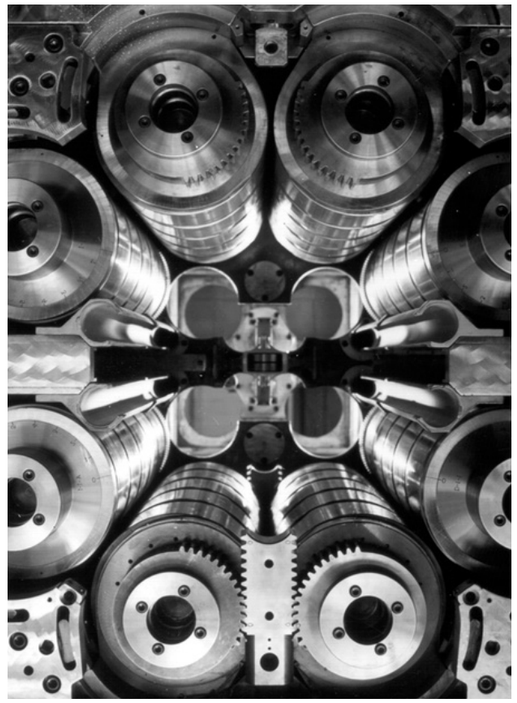
- Roll high-strength steel and stainless-steel strips

Challenges

- Very heavy loads
- High accuracy
- Critical lubrication conditions

Schaeffler's solutions

- Back-up rollers (WGTR) with a high running precision in groups by section height, special heat treatment of the outer ring, and optional sealing (for pneumatic and recirculating oil lubrication)
- Condition monitoring (ProLink CMS) and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units



Laying Head

Taking the corner at 450 km/h

Task in the metalsindustry

- Deposit the wire on the cooling and conveyor belt in overlapping windings

Challenges

- Very high speeds and high centrifugal forces on the bearing
- Vibration
- Elastic deformation

Schaeffler's solutions

- Non-locating bearing side: single-row cylindrical roller bearing in a customized version (lubrication bore in the outer ring and special cages)
- Locating bearing side: paired spindle bearings or angular contact bearings
- Condition monitoring (ProLink CMS) and other Lifetime Solutions

Tubular Strander

Getting the hang of it

Task in the metals industry

- Produce steel strands and steel cables

Challenges

- Very high speeds with an application-related light bearing load
- High acceleration when starting up
- Vibration during operation

Schaeffler's solutions

- Non-locating bearing (rotor bearing): single-row cylindrical roller bearing in a customized version (lubrication bore in the outer ring and special cages)
- Locating bearing: spherical roller bearings
- Condition monitoring (ProLink CMS) and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units

Ring Rolling Mill

Perfection despite a high temperature and enormous load

Task in the metals industry

- Produce seamlessly rolled, ring-shaped, semi-finished products for further processing

Challenges

- Heavy loads and temperatures
- Deflection of main and mandrel rolls
- Contaminants due to scale and dust

Schaeffler's solutions

- Spherical roller bearings with high load carrying capacity (optional coating)
- Axial spherical roller bearings
- Back-up rollers with optimized outer ring surface profile and special seals
- Condition monitoring (ProLink CMS) and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units

Transfer Crane or Carriage

Reliable transportation in virtually all process steps

Tasks in the metals industry

- Usage as overhead or steel transfer cranes
- Tasks range from placing raw materials in the smelting furnace to lifting and loading finished steel coils onto a means of transportation

Challenges

- Heavy loads
- Heat
- Dirt

Schaeffler's solutions

- Condition monitoring (ProLink CMS) and other Lifetime Solutions
- OPTIME Ecosystem for auxiliary units

Roller Tables

Carried on rolls: transportation of semi finished products in hot and dirty conditions

Task in the metals industry

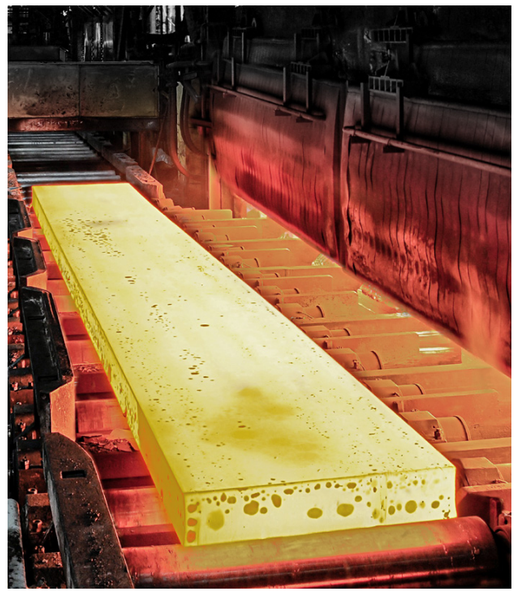
- Transport slabs, billets, sheet metals, and profiles

Challenges

- Heavy loads
- Heat
- Contaminants like scale and dust

Schaeffler's solutions

- Spherical roller bearings
- Sealed spherical roller bearings
- Housings
- ARCANOL lubricants and mounting tools
- Predict- and Power-Adapt electric condition and energy monitoring



Gear Units

Reliable and economical operation

Tasks in the metals industry

- Power transmission
- Influence the direction of rotation
- Control of speed and torque

Challenges

- Heavy loads
- Speed
- Design envelope
- Shaft arrangement
- Narrow radial and axial shaft guidance
- Rigidity of connector parts

Schaeffler's solutions

- Broad portfolio of bearings: cylindrical roller bearings, spherical roller bearings, double-row tapered roller bearings, deep groove ball bearings, angular contact bearings
- Different condition monitoring systems (OPTIME Condition Monitoring, SmartCheck, ProLink CMS), and other Lifetime Solutions

Electric Motors

Driving the industry

Task in the metals industry

- Responsible for the drive in almost all applications

Challenges

- Long-term machine availability with lowest possible maintenance overhead
- Risk of current discharge in bearing
- Lifetime lubrication
- High operating temperatures

Schaeffler's solutions

- Friction-optimized deep groove ball and cylindrical roller bearings
- Other rolling bearings commonly used in electric motors, including angular contact bearings, spindle bearings, and axial spherical roller bearings
- Aluminum oxide coating (J20) or versions with ceramic balls for electrical insulation
- Various condition monitoring systems (OPTIME Condition Monitoring, SmartCheck, ProLink CMS)
- Predict and Power-Adapt electric condition and energy monitoring
- Optimal lubrication solution and ARCANOL lubricants

Fans
For an optimal fresh air supply

Tasks in the metal industry
- Air-conditioning and cooling
- Discharge used air and exhaust gases
- Feed the process air

Challenges
- Imbalances and misalignments
- High speeds
- High temperatures
- Slippage in rolling bearings
- Subject to dust and dirt

Schaeffler's solutions
- Generation C deep groove ball bearings with standard and low-friction lubricants
- Angular contact bearings, cylindrical and spherical roller bearings
- Flanged SNS and SES housings, including a variety of sealing options
- Various condition monitoring systems (OPTIME Condition Monitoring, SmartCheck, ProLink CMS)
- Predict- and Power-Adapt electric condition and energy monitoring
- Optimal lubrication with automatic CONCEPT lubricators or the OPTIME C1 smart lubricator solution
- ARCANOL lubricants

Pumps
Working under high pressure

Tasks in the metal industry
- Pump and feed the cooling media in process technology
- Convey lubricants

Challenges
- High radial and axial loads
- Strong vibration
- Shaft arrangement and design envelope
- Long-term machine availability with lowest possible maintenance overhead
- Economical bearing solutions

Schaeffler's solutions
- Generation C deep groove ball bearings (optionally sealed)
- Single-row and double-row angular contact bearings (optionally sealed)
- Spherical and tapered roller bearings
- Non-locating bearing: single-row cylindrical roller bearings in N or NU design
- Various condition monitoring systems (OPTIME Condition Monitoring, SmartCheck, ProLink CMS)
- Optimal lubrication solution and ARCANOL lubricants
- Predict- and Power-Adapt electric condition and energy monitoring

Roll Shop
Maintenance of bearings and rolls

Tasks in the metal industry
- Maintenance of rolls and chocks
- Inspection of rolling bearings
- Inspection of rolls
- Assemble / disassemble of rolling bearings
- Grinding the rolls

Challenges
- Expert maintenance of chocks and rolling bearings
- Plannable availability
- Cost-efficiency and sustainability

Schaeffler's solutions
- Bearing remanufacturing and chock unit service
- Mounting service, mounting tools, medium frequency technology (MFT), heating devices
- ARCANOL lubricants

Sustainability at Schaeffler

Sustainability is one of the Schaeffler Group's four company values. Our sustainability strategy is consistently aligned with the three ESG dimensions of environment, social and governance.

Sustainable production for every industry
Schaeffler helps its customers reduce the CO_2 emissions of their plants, fully utilize their resources, and minimize their operating costs. This allows them to achieve their sustainability goals while at the same time optimizing their production processes.

Safety and high product quality
Schaeffler's solutions and products enable safe production with a consistently high product and process quality. They allow customers to improve the durability of their plants and also protect it from contaminants. This is also a form of sustainability.

Success thanks to innovative technologies
Climate-friendly production also means increased plant availability. Automated system solutions and smart condition monitoring are examples of how sustainable production can become a factor for success when innovative technologies are used.

To the **Sustainability Report** ›

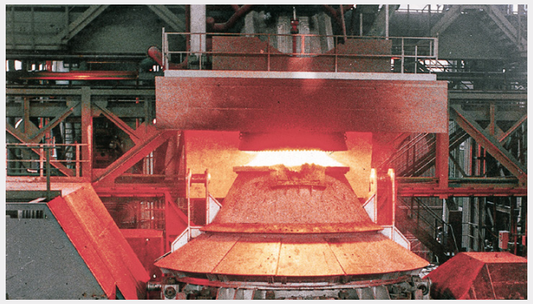
Benefits for our customers in terms of sustainability

Better market positioning through sustainable products	**Lower production costs** through resource efficiency	**Sustainable production** through innovative technologies	**Long-term success** through high product quality

Customer Success Stories

Leading European steel manufacturer

Rapid converter mounting thanks to a customized design



A leading European steel manufacturer planned to replace a converter in order to increase the capacity of its oxygen steel plant. To allow assembly and subsequent maintenance to be performed as quickly as possible, the customer chose Schaeffler's split spherical roller bearings and customized spheroidal graphite cast iron housings, which are also d esigned for use with split spherical roller bearings. Both bearings significantly reduced mounting time, and as a result, maintenance and downtime costs were significantly reduced.

Read the full story ›

VDM Metals GmbH

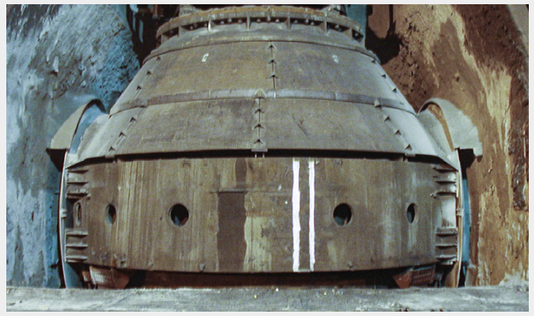
Upgrade to higher rolling forces

VDM Metals GmbH's location in Siegen, Germany, replaced its old mill with a state-of-the-art version capable of working with a maximum rolling force of 60 Meganewtons and incorporating hydraulic adjustment and work-roll bending. The customer requested that as many components as possible be reused. This was achieved in part by chromium-plating the existing bearings to the new diameter. A special four-row cylindrical roller bearing with a larger bore diameter and one-piece steel cage made it possible to upgrade to the higher rolling forces.

Read the full story ›

Tata Steel Group

Saving costs and downtime with a split bearing solution



Tata Steel, one of the world's largest steel manufacturers, operates two BOS (basic oxygen steelmaking) vessels at its Port Talbot location. A fast solution had to be found when a BOS vessel's main trunnion bearing was damaged. Instead of losing too much time on dismantling the main drive unit, Schaeffler recommended that the customer replace the locating bearing on the drive side with a split spherical roller bearing. Despite initial higher costs, this solution prevented substantial financial losses due to significantly reduced downtime.

Read the full story ›

thyssenkrupp Steel Europe

Mancrodur tapered roller bearings deployed for 10 years

The rolling bearings in the hot strip mill at thyssenkrupp Steel Europe's Bochum location have to withstand massive loads, including extreme forces, high temperatures, constant exposure to water, and external influences. That's why Germany's leading provider of high-grade steel products chose extremely wear and heat-resistant tapered roller bearings made of carbonitrided Mancrodur. Schaeffler experts at the Remote Diagnostic Center have been monitoring the plant for ten years and immediately report imminent bearing damage to the thyssenkrupp maintenance team.

Read the full story ›

Karabük Demir Çelik Fabrikaları (KARDEMIR)

Preventing millions in damage with reliable remote diagnosis

If a converter in a steel plant fails, the costs can amount to several million euros. Preventing unplanned downtime requires a comprehensive solution. The ProLink CMS vibration monitoring system provides the foundation, and it can be extended with sensors for acoustic emission, deflection, load, as well as grease monitoring with GreaseCheck. The data acquired is evaluated by Schaeffler experts at the German Online Monitoring Center (OMC) via remote diagnosis.

Read the full story ›

Belgian stainless-steel plant

Steel mill with annual savings in the five-figure range

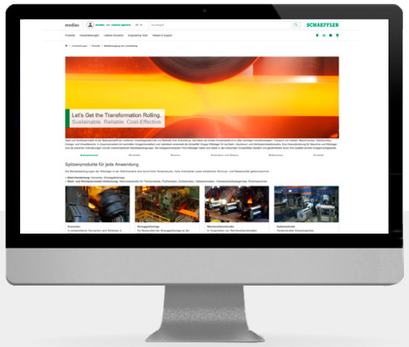
Schaeffler's remanufacturing service saved a Belgian stainless-steel plant an average of 50% on its rolling bearing costs compared to a new acquisition. That adds up to annual savings in the low five-figure range. Maintenance is performed on slightly damaged bearings, and bearings showing a significant amount of wear are remanufactured. This is how the steel manufacturer is extending the service life of its bearings and reducing the lifecycle costs of its plants.

Read the full story ›

medias

Knowledge database and digital product catalog

In addition to the Schaeffler product catalog, medias provides detailed information on all products and solutions, including a knowledge database with useful materials, such as white papers and online training courses. Calculation and configuration tools provide support in product selection.



What medias has to offer

Customers can find these features on our advanced medias e-commerce platform:

- Detailed information about products and solutions
- Specific solutions for specific industries
- Helpful engineering tools for selecting, calculating, and configuring products
- Comprehensive knowledge database as well as white papers, online courses, customer success stories, and more
- Free newsletter with industrial news from Schaeffler

Learn more about
Schaeffler medias ›

medias Engineering Tools

Select, analyze, and configure bearings and accessories

How big is the design envelope? What speeds and loads does the bearing have to withstand? How important is it that it's low noise? With the medias expert tools for selecting, analyzing, and configuring bearings and all types of accessories, Schaeffler supports its customers during the development phase and guides engineers to the right product and its accessories one step at a time.

Bearing selection assistant ›

One of over 24,000: The assistant helps designers find exactly the right bearing for their application.

Grease selection guide ›

Never again use the wrong lubricant: This tool helps users find exactly the right grease so their bearings run smoothly and have a long service life.

Housing selection guide ›

Comprehensive support for selecting housings and housing units: This tool takes environmental conditions into account as well as the demands on the bearing arrangement.

medias-interchange ›

Helps when converting to Schaeffler bearings: medias-interchange converts the rolling bearing designations of other manufacturers to INA/FAG nomenclature.

Trainings

Certified expertise from maintenance specialists

Customized training modules familiarize customers with all important Schaeffler products for bearing maintenance. Customers learn details about proper lubrication and detailed know-how about condition-based machine monitoring.

Overview of training fields

Products
- Product training sessions from the rotary, linear, and service areas
- Sector-based product training sessions

Assembly
- Assembly and disassembly of rotary and linear products
- Large bearing assembly

Basic principles
- Basic training sessions, including sector relevance
- Kinematics, speed, lubrication, and fault analysis

Lifetime Solutions
- Vibration analysis
- Balancing and aligning
- Condition monitoring

Learn more about
Schaeffler Trainings ›

Expert Services

Services across all aspects of condition monitoring

Schaeffler expert services provide support for the use of suitable monitoring systems. This includes not only hardware selection, but also system configuration and, where necessary, its integration into existing systems. Condition monitoring during operation is also provided on request.

Services at a glance
- Condition monitoring consulting
- System history
- On-site support for installation and commissioning
- Remote support during installation
- Vibration analyses
- Remote monitoring
- Endoscopies

Learn more about
Schaeffler expert services ›

Remanufacturing of Bearings

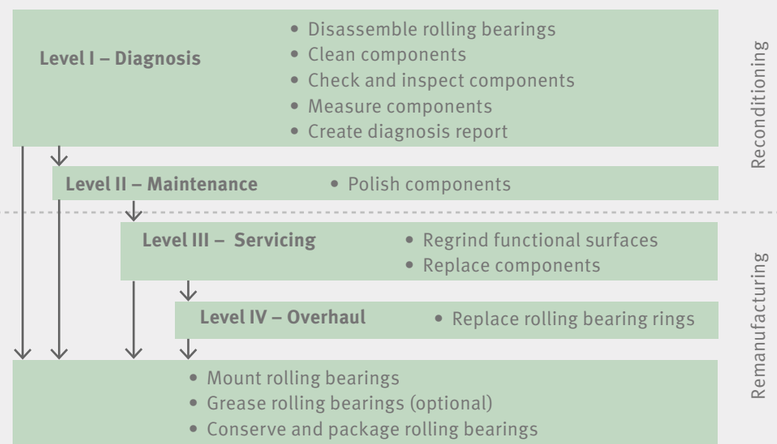
Sustainable option to extend service life

Bearings are often replaced even though they can be restored to as-new condition through proper remanufacturing. In general, the costs for such remanufacturing are significantly lower than the costs of a new bearing – with shorter delivery times in most cases.

Schaeffler carries out the remanufacturing in compliance with and control of all norms and standards worldwide. Before remanufacturing, the bearing is professionally dismantled, cleaned, and examined. Once the damage analysis is complete, the necessary work steps for restoration are determined and a quotation is prepared. Like new bearings, the remanufactured bearings pass through the accredited Schaeffler test laboratories. This service is currently used primarily by the rail and aviation industries, but is also being considered for manufacturing, which uses bearings with larger diameters. Here, too, service can significantly reduce life cycle costs.

Learn more about
Remanufacturing ›

The four levels of remanufacturing



Making a stand against product counterfeiting together

Stop counterfeiters with OriginCheck

Everybody knows that counterfeit luxury products are not at all rare: Just think about watches, handbags and perfumes, and also counterfeit sports items. But what about rolling bearings or even automotive spare parts – i.e. typical Schaeffler products? Very few people think of products like these when it comes to counterfeiting. But unfortunately, this is a day-to-day reality. Since brand protection is a matter of great importance to us, we already established a central team in 2004 that focuses on combating counterfeiting: The Schaeffler Brand Protection Team.

Learn more about
OriginCheck App ›

Data Matrix Codes on Rolling Bearings

Added value in the smallest spaces

Dive into the world of digital possbilities.
Perhaps you have already noticed the Data Matrix Code on Schaeffler packaging and rolling bearings. Even though it may seem insignificant, this little code has a lot to offer. Specifically: a wealth of useful information that offers you clear added value throughout the entire product life cycle.

Data Matrix Code for bearings
The Data Matrix Code is a well-known technology for Schaeffler products. It can be found on every product packaging. There are also some bearing products that have a DMC as a direct marking in the form of laser engraving. In recent years, the importance of this marking technology has steadily increased and the applications have expanded.

Applications
The Data Matrix Code provides a wealth of useful information and functions that offer you clear added value – throughout the entire product life cycle. It supports you with:
- Purchasing of products
- Logistics
- Warehousing
- Origin check

Hint:
There are several ways to read a Schaeffler DMC but you can also just use OriginCheck.

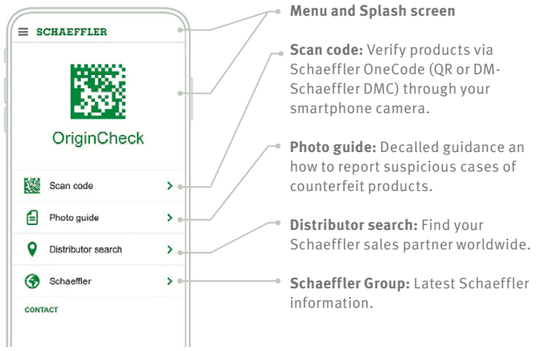
Learn more about
Data Matrix Code ›

Using the OriginCheck App

You suspect you may have purchased a counterfeit Schaeffler product? Then download the OriginCheck App for a first check.

App Store ›

Google Play Store ›



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