

## COOPER BEARINGS: AN IMPORTANT STEP TOWARDS EFFECTIVE POWER INDUSTRY RISK MANAGEMENT

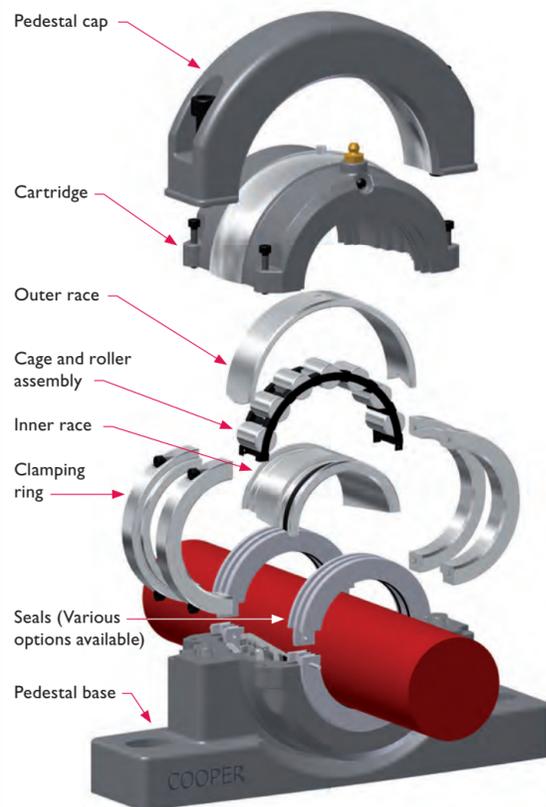
In power generation the lights must stay on at all costs. Yet no industry subjects its bearings to harsher conditions, or traps them in so many hard-to-get-at situations, inviting maintenance problems that can lead to sudden failure.

By eliminating access problems at a stroke, Cooper split roller bearings remove important elements of uncertainty and cost from power station operations, whether fossil, biomass or nuclear. Additionally, the superior sealing of these bearings endures even when shafts are imperfectly aligned, increasing resistance to wet, dirty, hot or abrasive conditions.

Applying major investment to research and development, Cooper ensures that its range develops continuously, in parallel with power industry machinery and methods. Today, with authorised supply chain partners in over thirty countries, Cooper products and expertise are more instantly accessible to your operations than ever before.

### Easy-to-fit, easy to disassemble: the logic that underpins the cost benefits

Cooper roller bearings are completely split to the shaft, yet designed and engineered to be extremely fast and easy to assemble into robust, reliable units that give exceptional service under the harshest conditions.



### A wide range of mounting options

Available in a range of materials such as iron, nodular iron or steel, the variety of Cooper mountings reflects the wide spectrum of tasks which split roller bearings can perform. There is a full range of SN-, SAF- and SD-compatible pedestals.



### The perfect sealing solution for your application

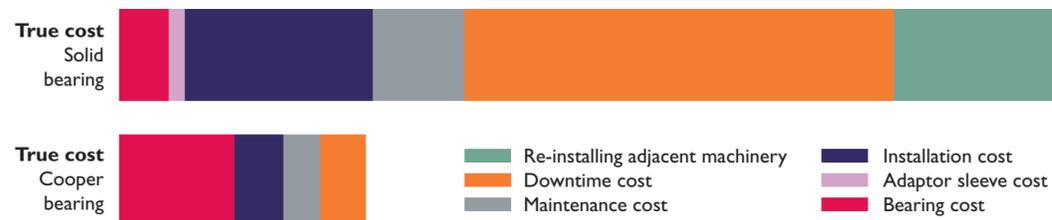
Superior sealing has been key to the success of Cooper bearings in ensuring continuous, problem-free operation over many years. We have a wide range of designs to meet the widely varying demands of the different locations and working environments in the power industry. Here are a few examples.

<p><b>Felt (F)</b></p> <p>Standard in UK and Europe for most Cooper bearings in general industrial applications. As a direct replacement, high temperature packing (HTP) seals are available, including silicon-free versions.</p>	<p><b>Synthetic rubber single lip (SRS)</b></p> <p>Suitable for wet but not submerged conditions. Can be used for improved lubricant retention by mounting lip inward.</p>
<p><b>Aluminium triple labyrinth (ATL)</b></p> <p>Machined aluminium-bodied triple labyrinth seal for high speed and general applications. Supplied as standard in USA and Canada. Triple labyrinth seals with Viton rubber cord inserts (TLHT) are available for high speed and high temperature applications.</p>	<p><b>Single lip with spring-loaded retaining plate (SRS RP)</b></p> <p>Suitable for severe splash or completely submerged conditions. The standard version is suitable for up to 2m of fluid, the high pressure version for up to 30m.</p>

### What you can expect to save for each Cooper bearing installed

The diagram shows the areas in which Cooper bearings can save you money. A simple calculation will often show through-life savings of hundreds of thousands of pounds per bearing.

Please note that these considerations leave out the fast and easy inspection made possible by Cooper split roller bearings, which helps eliminate sudden failure and all its associated costs.



### COOPER BEARINGS GROUP Customer Service Centres

**UK, Europe, South America, Asia, Australia and the Middle East**  
Cooper Roller Bearings Company Ltd.  
Wisbech Road  
Kings Lynn, Norfolk, PE30 5JX  
United Kingdom  
**Tel:** +44 (0) 1553 763447  
**Fax:** +44 (0) 1553 761113  
**Email:** [CoopersalesUK@kaydon.com](mailto:CoopersalesUK@kaydon.com)

**USA, Canada, Mexico and Central America**  
The Cooper Split Roller Bearing Corp.  
5365 Robin Hood Road, Suite B  
Norfolk, VA 23513  
USA.  
**Tel:** +1 (1) 757 460 0925  
**Fax:** +1 (1) 757 464 3067  
**Email:** [CoopersalesUS@kaydon.com](mailto:CoopersalesUS@kaydon.com)

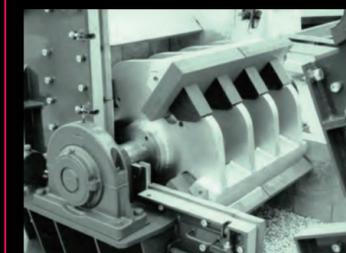
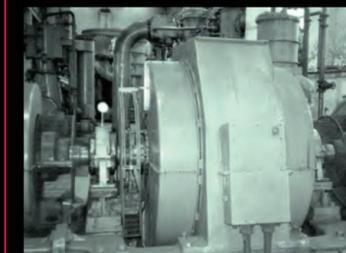
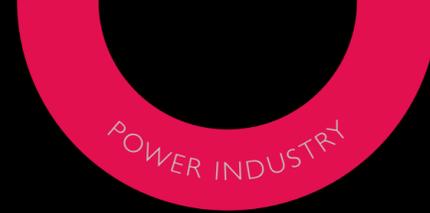
**Germany**  
Cooper Geteilte Rollenlager GmbH.  
Postfach 100 423  
Oberbenrader Str. 407  
47704 Krefeld Germany  
**Tel:** +49 (0) 2151 713 016  
**Fax:** +49 (0) 2151 713 010  
**Email:** [CoopersalesDE@kaydon.com](mailto:CoopersalesDE@kaydon.com)

**People's Republic of China**  
Cooper Bearings Group Beijing.  
Room 909, Canway Building Tower 1  
No 66, Nanlishi Road, Xicheng District  
Beijing  
PRC 100045  
**Tel:** +86 (0) 10 68080803  
+86 (0) 10 68080805  
+86 (0) 10 68080806  
**Fax:** +86 (0) 10 68080801  
**Email:** [CoopersalesCN@kaydon.com](mailto:CoopersalesCN@kaydon.com)

**Brazil**  
Cooper do Brasil Ltda.  
Caixa Postal 66.105  
CEP 05.314-970, Brasil  
**Tel:** +55 (0) 11 3022 3706  
**Tel:** +55 (0) 11 9156 2500  
**Email:** [CoopersalesBR@kaydon.com](mailto:CoopersalesBR@kaydon.com)

**India**  
Cooper Roller Bearings Company Ltd.  
Wisbech Road  
Kings Lynn, Norfolk, PE30 5JX  
United Kingdom  
**Tel:** +91 (0) 9820180089  
**Email:** [CoopersalesIN@kaydon.com](mailto:CoopersalesIN@kaydon.com)

**Australia**  
Cooper Bearings Group  
PO BOX 241, Kelmescott  
Western Australia 6991  
**Tel:** +61 (0) 8 93979990  
**Fax:** +61 (0) 8 93979990  
**Email:** [CoopersalesAU@kaydon.com](mailto:CoopersalesAU@kaydon.com)



[www.cooperbearings.com](http://www.cooperbearings.com)

Document code: CPR021\_aEng\_Sep11

# Cooper: keeping the wheels turning throughout the power industry

Cooper split roller bearings support the power generation industry in a wide range of applications, including those shown in the table:

Bearings in the power industry
Conveyors (belt & screw)
Fans and blowers, including scrubber fans
Crushers, breakers, pulverisers and mills
Heat exchangers
Generators and motors (including high rise pedestal mill motors)
Water screens
Pumps and pump drives
Carriers and feeders
Stacker reclaimers
Washers
Winders
Flywheel/brake sets



## Conveyors

The roles of conveyors include the transport of fuels (ranging from coal to organic wastes) and raw materials such as limestone for scrubbing. They remove waste products from both nuclear and conventional processes. You will find Cooper bearings assuring the smooth running of belt feeder, screw and other conveyors in power plants all over the world, in the harshest conditions and especially in 'trapped' locations where no other type of bearing can easily be installed or inspected.



## Fans and blowers

Fans play an important role in regulating temperature, removing dust, maintaining ventilation and scrubbing flue gases, often in harsh or corrosive conditions. Bearing locations are often trapped, with the result that split-to-the-shaft Cooper products offer distinct advantages in terms of accessibility.

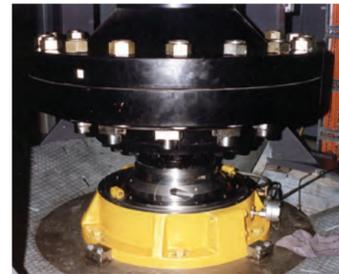


## Crushers, breakers, pulverisers & mills

Equipment that grinds and smashes solid fuels and raw materials needs to be particularly robust, and that includes the bearings involved. Cooper products, with their high quality engineering and superior sealing systems offer long bearing life while their ready access for inspection practically eliminates any risk of sudden failure.

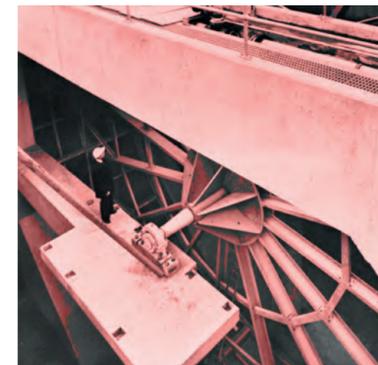
## Generators and motors (including high rise pedestal mill motors)

With their vital role in keeping the power flowing, generators and motors constitute a point where the power industry is perhaps at its most vulnerable to bearing failure. They also feature many trapped locations where Cooper split-to-the-shaft bearings can make a huge difference, both in ease and speed of inspection and in downtime needed for bearing maintenance and replacement.



## Pumps and pump drives

Hardworking bearings support vital pumping activities, feeding boilers, circulating cooling fluids and extracting condensates. Cooper bearings find application on a wide range of pump shafts, many in hard-to-access situations.



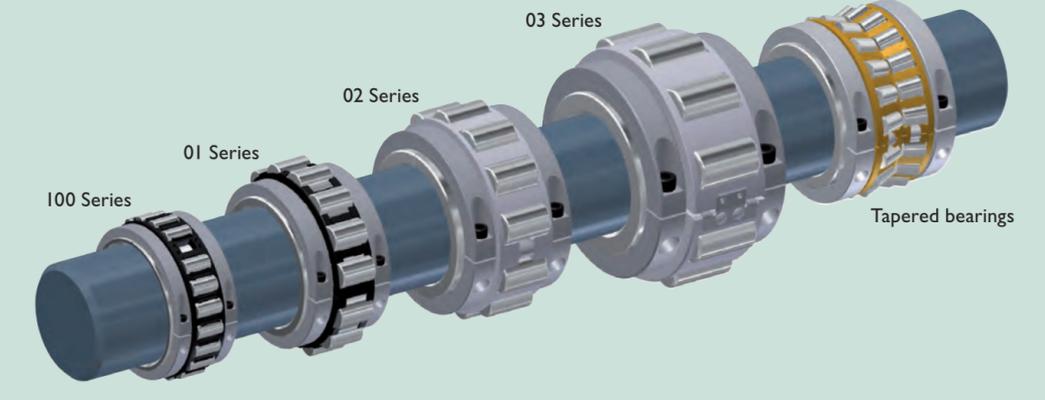
## Water screens

Massive rotating water screens are needed to filter water which will be used for cooling. Any impurities which could block the narrow cooling tubes must be removed. The bearing shown can carry up to 70 tonnes and operates completely submerged for much of the time.

## Cooper bearings used in power generation

Cooper split roller bearings include the 100 Series of high-speed compact bearings, the medium duty 01 Series, heavy duty 02 Series and extra heavy duty 03 Series. In addition there is a rapidly developing range of double-row split tapered bearings. We also offer a heavy duty bearing in an SD-compatible heavy duty pedestal.

In addition, Cooper makes special bearings to its own and customer specifications (see page at right).



Cooper bearings are also widespread in renewable energy applications, such as water turbines. Please visit our website to find out more.

## The basis of phenomenal through-life cost savings: Cooper roller bearings are split to the shaft

- Bearing installation is fast and easy no matter how 'trapped' the location
- No shaft realignment is required
- Inspection is simple and fast, aiding planned maintenance and reducing both downtime and "unexpected" failure
- Smaller range of operations needed, leading to task and toolbox simplification
- Handling weights are reduced (smaller, lighter pieces). Lifting gear is not required for most Cooper sizes. No lifting of nearby equipment is required

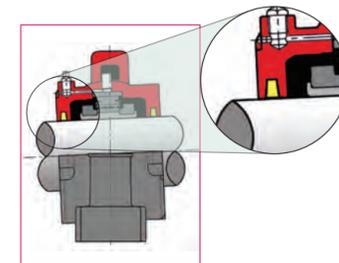
- A better long-term solution: the Cooper inner race protects the shaft and eliminates journal wear
- No cooling system is needed, thanks to low friction



## The secret of long bearing life: a seal that stays aligned with the shaft, even when the shaft is misaligned

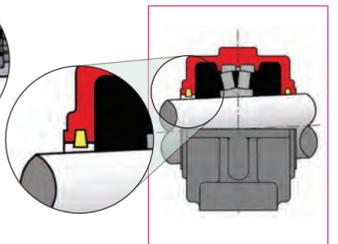
- Full seal integrity even if the shaft moves  $\pm 2.5^\circ$
- Reduction of foreign material ingress, even in very dusty environments
- No running-in period needed
- Little lubricant leakage, making lubrication simpler and keeping work surfaces cleaner

Cooper bearing

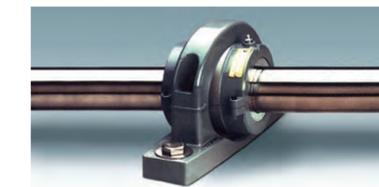


Thanks to its unique swivelling cartridge, the Cooper bearing allows the seal to remain concentric with the shaft at all times.

Double row spherical solid bearing



By contrast, the solid bearing arrangement opens up the seal or crushes it.



## Made to order bearings for the power industry

In addition to a large range held in stock, Cooper designs and makes bearings to order. We frequently manufacture split or solid thrust and radial roller bearings up to 1.5m shaft diameter and have the skills and equipment to produce many other special products as well as to modify existing bearings and casings of our own or other manufacture.

For example, shown at left is a combined radial and thrust bearing specially designed to take the axial load of a forty five tonne pump, capable of pumping five thousand litres per second.

If you would like to use our custom services, please get in touch with your nearest Cooper Customer Service Centre (please see list on back page of this brochure).

