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INDUSTRY UPDATES

new | innovative | value







Camozzi introduce stainless steel fittings and accessories

Camozzi has introduced new stainless steel fittings and accessories, expanding their 316L of pneumatic and fluid connectors. These parts are Ideal for applications operating in high temperatures, or requiring resistance to corrosion and contamination

SKF expand range of adjustable chocks

SKF has expanded the range of adjustable chocks to help improve the technical and economic performance of rotating equipment. Chocks allow all types of rotating equipment to be mounted easily and accurately to base frames and either steel or concrete foundations.

THK introduce innovative LMHB linear bushing

The new THK bushing makes installation easy through press fitting and achieves smooth, silent motion due to the spring effect provided by proprietary curved metal plates. The LMHB conforms to ISO 10285 Series 1, allowing for more compact machine designs.







Ruland shaft collars with quick clamping elements

Ruland have introduced shaft collars with clamping levers to their 'Quick Clamping' collection. Due to the collars ratcheting handle, they require no tools to install, remove or reposition and work well on virtually any shaft. Ideally suited for packing and printing industries.

Ewellix launches smart electromechanical actuator

EWELLIX has developed a smart electro-mechanical actuator offering built-in monitoring/diagnostics and communication. It also offers a typical meantime to failure of 75 years. Ideal for demanding applications such as agricultural and construction machinery.

NSK launch bearing with worlds first bioplastic cage

Following the development of the world's first 100% bioplastic heat-resistant cage, NSK has completed development of a line-up of bearings adopting the environmentally friendly cage. This is the world's first 100% bioplastic cage mass marketed for air conditioner fan motors.

UPDATES FROM ACORN

PROUD TO BE AN EWELLIX CERTIFIED

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As a long-standing Ewellix partner, ACORN recognises the importance of holding large stocks of linear products so that we can meet the demands of machine builders and maintenance engineers and ensure continuity of supply. As a result, we can supply Ewellix linear products on next-day delivery service throughout the UK.



EWELLIX MAKERS IN MOTION

Ewellix distributors are globally recognised for the services they provide customers. As a Ewellix Certified Partner, ACORN undergoes extensive training and audits-of-performance standards, and high levels of knowledge of Ewellix linear guides, ball and roller screws and actuation products allow us to offer additional services to customers and to serve the industrial market.



Connect with Linear Product Manager, Simon Gillingham on Linkedin

UPCOMING SPECIAL OFFER

Keep your eyes peeled for upcoming special offers on maintenance products throughout 2022!

Next up is 10% off mounting & dismounting tools during May 2022. Quote 'DIMAY22' at checkout.

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the correct type of lubricant for your operating conditions, or you could risk compromising your bearing. For example, if the bearing is located within an oven, you will need to choose a grease or oil that is designed to withstand high temperatures.

The best way to ensure that your bearing doesn't become a victim of improper lubrication is to consult with an expert in bearing maintenance to ensure that your choice of lubrication and your maintenance schedule is optimum for your machinery and your operating environment. This will help you to ensure that your bearings are receiving the care that they need to achieve a long and productive service life.



If your bearing becomes contaminated, this could lead to premature bearing failure. There are a few ways in which your bearing could become

Incorrect seal - One of the most common reasons for a bearing becoming contaminated is an incorrect seal being used. It could be that your seal isn't sufficient for the levels of contamination being

WHY DO BEARINGS FAIL?

earing failure is one of the most common causes of D machine downtime. And let's face it, no matter what industry you're in, downtime isn't just an inconvenience - it's also costly. To reduce your machine downtime, you need to understand why bearings fail and how you can prevent this from happening.

So, why do bearings fail? To answer this question, you need to understand the most common causes of bearing failure. However, it's also important that you know how to prevent each of these causes of failure from happening. After all, prevention is the best cure.

In this article, we'll go through the top five causes of bearing failure, as well as explaining how you can keep your bearings in the best possible health, helping you to avoid bearing failure and the consequent downtime that it causes.



1. Incorrect lubrication

Poor lubrication is the most common cause of bearing failure, and knowing how to care for your bearings can make a huge difference when it comes to avoiding bearing failure caused by improper lubrication.

There are a few different ways in which bearing failure can result from lubrication:

Insufficient lubrication - if your bearing does not have enough lubricant, or you do not apply lubricant often enough, it could run hot and eventually seize. This is because bearings rely on a certain amount of oil in order to perform effectively. If there isn't enough oil in your bearing, it can seize - causing dangerous conditions and leading to costly downtime for your machine.

Over-lubrication - over-lubricating your bearing can also cause problems. It seems counter-intuitive, but excess lubrication can cause leakage through the bearing's seal. This can cause the seal to become compromised, allowing the ingress of contamination into the bearing and leading to its ultimate failure.

Wrong type of lubricant - There are many different types of lubrication on the market, from oils to greases. It's essential that you choose experienced, or that it isn't suitable for the speed, temperature or load of the application.

Poorly fitted seal - If a seal doesn't fit properly, there will be a small gap that allows the ingress of contamination into the bearing.

Degradation of seal - When a seal becomes old, or if it becomes compromised as a result of extreme temperatures or abrasive contamination, it may begin to degrade. This could enable contamination to enter the bearing, eventually leading to premature bearing failure.

Improper storage - Bearings should be stored according to the manufacturer instructions. This usually means leaving the bearing in its original packaging in a cool and dark location until the point of fitting. If the bearing is not stored correctly, it could become contaminated before it is even mounted to the application.

Improper handling - It's important that bearings are handled carefully during the mounting process, with due care taken to avoid any contamination entering the bearing. It is also essential that the equipment used for mounting the bearing has been thoroughly



cleaned to prevent contamination.

The best way to avoid your bearing failing as a result of contamination is to follow the manufacturer's instructions carefully when it comes to storing the bearing, and to handle it carefully during the mounting process to avoid any potential contamination.

It's also essential that the bearing is fitted with an appropriate seal, taking into account the operating environment, as well as the running conditions of the machinery. The seal should be inspected at regular intervals to ensure that it fits the bearing properly and has not begun to degrade.



3. Fatigue

According to SKF, around 34% of all premature bearing failures can be attributed to fatigue. This makes fatigue the leading cause of premature

bearing failure. Whilst bearings can fail due to fatigue at the end of their natural lifecycle, bearing fatigue is more commonly the result of the wrong bearing being specified for the application.

This does not necessarily mean that the wrong bearing was selected during the specification process. It's common for the operating characteristics of machinery to change over time. This is often the result of higher levels of demand being placed on the machinery, requiring it to operate at higher speeds or with heavier loads. However, this places additional demands on machine components, including the bearings.

It's vital that you take into consideration both the running characteristics and the operating environment of the machinery when specifying a bearing. However, it's also critical that bearing suitability is reconsidered whenever there is a change to the operating conditions. This could be a change in speed or load, or it could be a change in the external operating environment, such as the temperature or levels of contamination.

Ensuring that you have chosen the right bearing for your application, and continuing to reassess this at regular intervals, will help to reduce the risk of bearing failure as a result of fatigue.



4. Incorrect mounting

Approximately one sixth of all premature bearing failures are the result of incorrect mounting practices. This is because bearings commonly

become damaged during the fitting process, causing them to fail prematurely.

There are three different ways in which a bearing can be safely fitted:

Mechanical - using a bearing fitting toolkit Heat - using a bearing heater

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Oil - using oil injection techniques

Mechanical fitting methods can be both safe and effective if done correctly. This means using a bearing fitting toolkit such as SKF's TMFT 36 to ensure that force is applied evenly across the bearing and that damage does not occur during the mounting process.

Brute force is often used when fitting bearings. However, this frequently leads to force being applied unevenly to the bearing, resulting in damage occurring. Although you may not notice this damage during the mounting process, this damage could lead to the bearing's premature failure later down the line.

Heat is a highly effective method for mounting bearings. However, bearings should be heated using a bearing heater, rather than a naked flame or oil bath. This is because the bearing is often heated unevenly when a naked flame or oil bath are used, leading the bearing to become damaged during the fitting process. Flames and oil baths can also lead to severe injuries for the engineers involved.

Selecting an appropriate mounting method for your bearing can help to prevent any damage being inflicted on the bearing that might later cause its premature failure, as well as helping to keep your workers safe.



5. Improper handling

When you're handling bearings, it's essential that you take proper precautions. This is because the handling process is a time where the bearing is at

high risk of damage, through scratches or indentation.

It's also essential that you store your bearing according to the manufacturer's instructions. This typically means keeping your bearing in its original packaging in a cool, dark room until you are ready to fit it to your machinery.

When your bearing is being stored and handled, it is at its highest risk for being exposed to contaminants such as dust or dampness. If due care is not taken, it could also risk being damaged by being knocked or dropped. This could lead to the bearing failing prematurely due to damage sustained or contamination that has entered the bearing.

Properly storing your bearing and ensuring that it is handled carefully at all times will help it to achieve its full service life, avoiding premature failure as a result of improper handling or storage.

How to avoid bearing failure

Whilst bearings will inevitably fail at the end of their service life, premature bearing failure is unfortunately a common occurrence that can be prevented with the right knowledge.

To give your bearings the best chance of achieving their full service life, there are a few steps that you can follow:

- Ensure that you specify the correct bearing for your application requirements as well as the environment in which it operates.
- Regularly check that you're still using the most appropriate bearing for the operating conditions.
- Use a safe and effective method for mounting your bearing, such as using a bearing fitting toolkit or a bearing heater.
- Store and handle your bearings carefully, in accordance to the manufacturer's instructions.
- Ensure that you are using the most appropriate sealing solution for your application, and regularly inspect the seal for signs of degradation or misalignment.
- Check that you are using the most appropriate lubricant for the application, as well as the operating environment.
- Regularly inspect the bearing for any signs of wear or damage. If the bearing appears damaged, replace it at the soonest opportunity to avoid catastrophic failure.

When a bearing fails prematurely, inspect it for any visible damage and consider sending it to a bearing expert for root cause analysis. Of course, you can't save the bearing after it has failed but finding out the cause of the problem could help you to avoid future failures and downtime.

In summary

Premature bearing failure is a common problem in industry, but the majority of the time it can be prevented by following the tips above. If you're unsure of how to keep your bearings operating at their best, it's best to seek advice from a bearing expert. They will be best placed to offer advice on maintaining your bearings and reducing your risk of premature bearing failure.

In this article, we have answered the question 'why do bearings fail', as well as explaining how you can use your new knowledge to prevent your bearings from failing prematurely. For more assistance in getting the most out of your bearings, contact your local ACORN branch today.

Read more from the ACORN Bearing Compendium series at: www.acorn-ind.co.uk/insight

TALK TO THE EXPERTS

Connect with Bearings Product Manager, Andy Fletcher on LinkedIn, or:

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ACORN HELP BIOMASS PLANT WITH MAJOR TURBINE OIL CHANGE





Industry: Biomass



Application: Turbines



Cost & Time Saving:

Improved machine performance, preventative maintenance and support



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The issue

A local Biomass plant reached out to Acorn's Fife branch when they urgently needed to change out 1,500 litres of turbine oil. The oil had only been topped up when required, and the plant had never undergone a complete turbine oil change.

The solution

Regional Manager, Phil McLaughlin suggested they make the switch to Petro-Canada TURBOFLO Turbine Fluid to ensure that he was providing the best solution possible. Phil worked with Petro-Canada to answer any questions and queries the Chief Engineer of the plant had. It was advised that before putting in the new fluid, the turbines should have any sludge and dirt cleared out to make sure that the new oil would work at its optimum. Additionally, as Petro-Canada fluid moves through the system, it helps to keep the filters clean, so by cleaning the turbine out before adding the fluid would keep the turbines clean and working well.

1,500 litres of TURBOFLO were delivered within 10 days to correspond with the planned maintenance shut down the site had organised. To aid with the plants preventative maintenance measures and to safeguard performance, ACORN® and Petro-Canada are taking regular samples to provide the customer with continuous updates on how the oil is performing.



ARE YOU READY TO ROLL?



As one of the world's largest bearing manufacturers backed by over a century of manufacturing excellence, NSK solutions today help customers worldwide achieve optimal rotational motion.

The company continuously develops its comprehensive line-up of premium quality ball and roller bearings to last longer and perform better.

We know from experience that NSK ball bearings, for example, are synonymous with long service life, proving ideal for use in high-speed applications featuring low to moderate loads. In contrast, the NSK range of roller bearings are perfect for conveying heavy loads at slow to moderate speeds. With these two product offerings we can meet the requirements of almost any rotational motion application.

Whole new ball game

Beginning with ball bearings, the NSK range is wide and varied,

embracing deep groove, angular contact, double-row angular contact and self-aligning types.

Prominent among this range are NSK deep groove ball bearings, industry's most common form of rolling bearing. Finding use in many applications, particularly those where high speeds and low power loss are required, NSK deep groove ball bearings can handle not only radial forces, but also moderate axial loads in both directions. Deployable in a variety of configurations, we can testify that these bearings are easy to install.

Among the many product features and benefits of NSK deep groove ball bearings is the cage. A number of different cage types are available to suit your application needs, made from steel, solid brass or polymer. NSK even recently announced that it had developed the world's first 100% bioplastic heat-resistant cage for rolling bearings, reducing lifecycle CO2 emissions by 91%. As for the bearing raceways and rings, the use of high-quality steel is matched using advanced NSK lubricant technology. Further attributes include superfinished raceways to minimise noise and improve lubricant distribution and life, while the use of high-grade balls also contributes to quiet and smooth operation, even at high speeds. Of course, all NSK deep groove ball bearings are subject to 100% testing to ensure total product quality.

Seal of quality

A particular feature of NSK deep groove ball bearings is the variety of seal technologies available, providing resistance to contamination in the toughest operating environments.

NSK is a specialist in bearing sealing technology, offering a vast range of bearing closures that include metallic shields and polymeric seals for years of trouble-free service. Tightly controlled clearances and patented labyrinth designs not only deliver high level sealing performance, but also minimum torque and power loss.

Several different seal/shield designs and materials are available, each developed to meet the specific needs of your application. NSK seals offer varying degrees of contamination resistance and drag characteristics, including full-contact DU seals, light-contact DW seals and non-contact V seals. So, whether it's a conveyor roll demanding contamination resistance or an electric motor that requires sealing capability without compromising energy efficiency, it's easy to supply the right closure for your application.

High rollers

Just like ball bearings, we can also provide a wide range of NSK roller bearings, including cylindrical, taper, needle and spherical variants.

NSK cylindrical roller bearings are available with various rib configurations, to accommodate different

applications and assembly methods, including N, NU, NJ and NUP for single row and NN or NNU for double row, available with patented high-strength cage designs in pressed steel, machined brass, or polyamide. These bearings offer low noise and heat generation, and - by virtue of the line contact between the rolling elements and raceways - have high radial load capacity and suitability for high-speed applications.

Cylindrical roller bearings are often deployed as free end bearings, as axial displacement between rings is possible, except for designs with ribs on both rings. Axial load support is possible in a single direction



for three rib configurations such as NJ, with system location and axial load support in both directions from four rib designs including NUP and NH. Double-row cylindrical roller bearings offer high radial rigidity and are a popular choice for precision machine tools.

Sphere of opportunity



Also prominent in the roller range is the NSK series of spherical roller bearings, which can withstand even the most demanding conditions, resisting seizure and wear, despite constant vibration, misalignment, and shock loads. They maintain dimensional stability, even

up to temperatures up to 200°C and can support high radial loads and moderate axial loads. What's more, performance enhancements include extremely tight radial clearance tolerance, extra precision on the bore and outside diameter, and super-finished, specially heattreated rollers with superior shock load capacity.

Conspicuous among the spherical roller bearing range is the NSK HPS (High Performance Standard) series. NSK HPS Spherical Roller Bearings are optimized by design to deliver higher load carrying capacity, operate with higher limiting speeds, and perform reliably for a longer operating life. In conventional applications, their high-performance capacity can also enable downsizing the design envelope for machinery and equipment.

Furthermore, designs for the most arduous operating conditions are available, including vibratory specifications for screens, sealed options for highly contaminated environments, thorough to Molded-Oil lubrication technology for wet conditions and extra tough patented alloys such as TL steel (tough and long life) for applications where high temperature differentials would normally cause inner ring fracture to occur, such as dryer and calendar rolls in the paper sector. Whatever the environment, NSK has a solution...

Added value

Here at Acorn we can help you overcome all of your bearing challenges in sectors that include steel making, machine tools, paper making, automotive, mining, construction, wind turbine, rail, medical devices, agriculture, food and beverage, motors & greaboxes to list but a few. Whatever the application, we have an NSK ball or roller bearing that can add value to your project.







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n June, Acorn Industrial Services will be joining over 600 firms at Hillhead 2022. Hillhead is the largest Quarrying, Construction & Recycling exhibition of its kind in the world and after a four-year break due to the COVID-19 pandemic, the exhibition is ready to come back bigger and better than ever.

ACORN[®] will be showcasing a range of products hand-picked by our product experts for heavy-duty industries, all products are designed to provide practical and palpable solutions in harsh environments.

Among these solutions are two innovative bearing units from SKF: the time-saving new Cooper Split Spherical Roller Bearing and the Triple-Barrier solution that includes an SNL housed unit with taconite seal, housing cavity grease and a sealed SKF Explorer spherical roller bearing.

That's not everything you'll see from SKF on the stand. Alongside

our own experts, ACORN is pleased to welcome the SKF product and industry experts onto the stand to perform live demonstrations of top maintenance products

and other solutions for the industry. They will also be on hand to answer any product questions or queries.

Other specialist products featured on

the stand will include Camozzi pneumatic cylinders with scraper seals - specially designed for harsh environments, world-renowned the POLYCHAIN® Gates PREDATOR[®] belts displayed on a working drive unit and the reliable FALK Lifelign gear coupling among many, many more.

On the stand, there will also be four senior

members of the ACORN team who are ready to offer their expert advice on how to get the most from your machinery. The team includes Bearing Product Manager Andy Fletcher,

Power Transmission Product Manager Paul Speight, Couplings & Drives Product Manager Tom Fowler and North Branch Manager Craig Tivey.

Taking place in the Hillhead Quarry in Buxton, UK, the event will include products launches, live demonstrations and discussions, attracting over 20,000 visitors from across the world.

Catch up with the ACORN team and grab a refreshment by visiting us on stand F2 - we can't wait to see you!

> **Register to attend the** show at www.hillhead.com



LIFELIGN[®] GEAR COUPLING

Lifelign gear couplings is a high performance gear coupling which features triple-crowned teeth. These teeth are crowned on the root, tip and face to allow free articulation. this helps to minimise misalignment, reducing wear.

With low-backlash operation, as well as reduced radial clearances and no tiploading, these triple-crowned teeth help to protect surrounding equipment from damage caused by shock loads.

STEELFLEX® GRID COUPLING

Steelflex grid couplings are renowned for their durability, as well as their outstanding performance characteristics. Grid couplings showcase an innovative replace-in-place design, meaning that there is no need to move hubs or realign shafts during maintenance or replacement. This reduces both downtime and maintenance costs for the business. Steelflex boasts high-strength alloy steel grids which are tempered to spring hardness, helping to provide a longer service life without wear.



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FALK COUPLINGS





WRAPFLEX® ELASTOMERIC COUPLING

Wrapflex elastomeric wrap-element jaw couplings feature polyurethane elastomeric element which is both wear and chemical resistant. This helps to extend equipment life by dampening vibrations and shock loads, as well as being fail-safe.

These couplings have an innovative replace-in-place design to allow for easy installation in situ, making them the coupling of choice for fans and pumps as surrounding equipment isn't dismantled





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