



Power for a new generation

SKF solutions for the wind energy industry



The Power of Knowledge Engineering

As for the world's energy needs,



the wind has shifted – for good

The world's need for energy is steadily increasing. The rapid growth of the wind industry reflects this. But for wind farms to succeed, energy must be generated with high availability and minimized costs – production must be efficient from day one. This, in turn, requires a need for reliability of functions and sub-systems supply.

The global wind energy producers rely on suppliers who have design and manufacturing capabilities for products and solutions as well as competence and presence to offer services around the globe – not least in emerging markets, such as China and the Americas.

In a close cooperation with SKF, you can benefit from our long experience of the wind energy industry to make your wind turbines and farms more reliable and profitable. In addition, our solutions and proven track record of reliability can help open up new business opportunities for your company.

We can provide you with solutions that are designed to increase efficiency and maximize productivity. By reducing the number of suppliers you can benefit from synergy effects such as cost and productivity advantages. We offer you a wide range of services and products, including rolling element bearings, housings, couplings, lubrication systems

and lubricants, seals, conditioning monitoring systems, maintenance tools, mounting and alignment tools, as well as remote monitoring and diagnosis.

Evolving rapidly, the wind energy industry is requiring ever new engineering developments. Continuous research – e.g. in the areas of specialized bearings, seals and condition monitoring – and development of new solutions can meet these needs. Recently introduced products and solutions for the wind energy industry include:

- Global remote condition monitoring solution for turbine diagnosis
- Central, automatic grease lubrication systems for bearings, slewing and yaw gears that can be connected to monitoring systems
- Insulated as well as hybrid bearings to avoid passage of damaging electric currents
- Hydraulic couplings specially designed for easy mounting and dismounting
- Energy-efficient bearings for generators and gearboxes

Whether you are a wind energy producer, an operation and maintenance provider, a wind farm developer or other operator in the wind energy industry operating a wind farm is not an easy task. You cannot avoid the uncertainty of the unpredictable wind, but you can reduce uncertainties regarding the reliability of the equipment. Here, SKF can make you an offer for the future – based on optimal reliability, efficiency and productivity.





Team up for a more profitable future

SKF is your excellent wind energy technology supplier for a number of reasons.

We know that some people still regard SKF as “the bearing company”. That makes us proud – bearings are our core products. What makes us even more proud though is that we are also known as a specialist in five different technology areas.

No other company can match that.

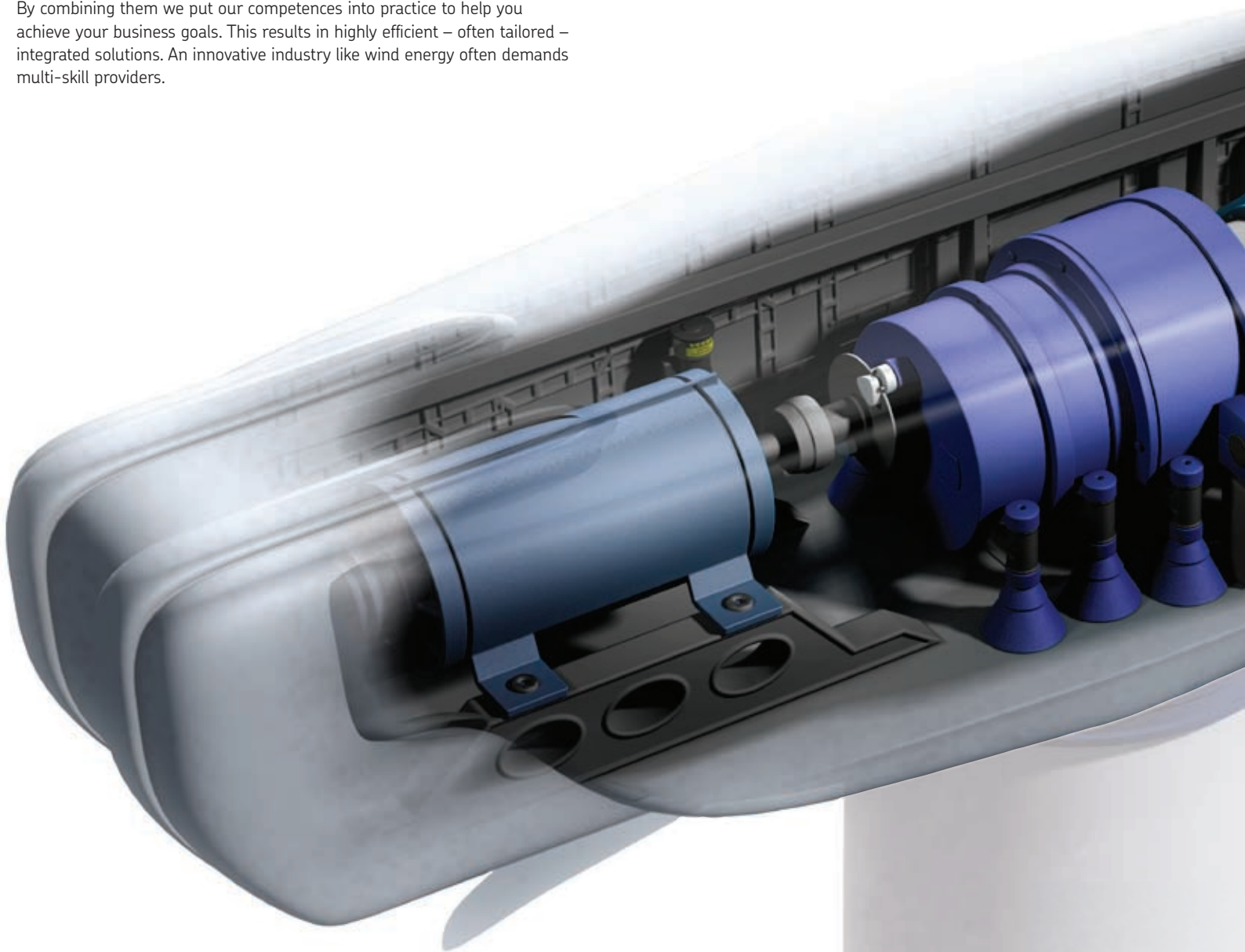
Five vital areas of engineering competence

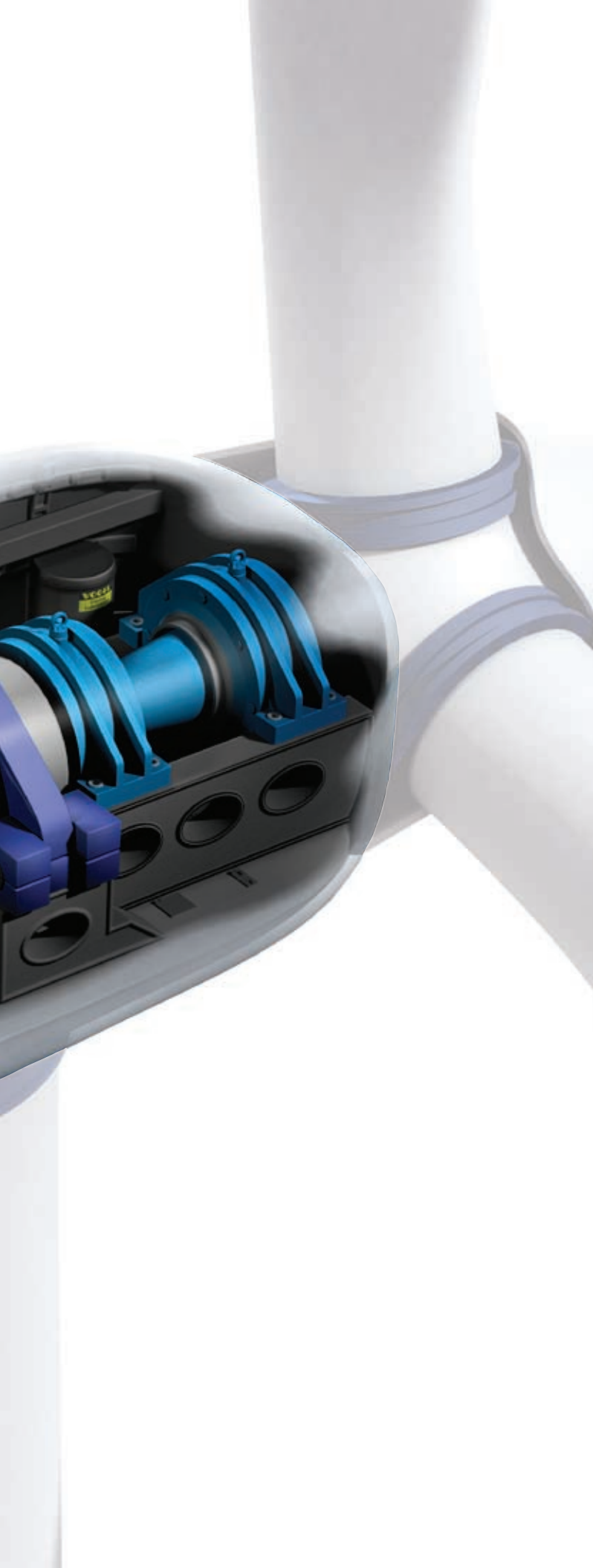
Bearings and units, lubrication systems, seals, mechatronics and services are five vital competence areas for the engineering industry. They are our main areas of expertise.

By combining them we put our competences into practice to help you achieve your business goals. This results in highly efficient – often tailored – integrated solutions. An innovative industry like wind energy often demands multi-skill providers.

We can help you by providing reliable efficient technology and solutions as well as first-class service and support. As an SKF customer you also have access to our accumulated technical experience, collected during 100 years of cooperation with the world’s leading engineering companies.

Through the years, we have seen the wind energy industry grow stronger. Close cooperation with our customers in this industry enabled us to develop new solutions for its demanding challenges. Today, your industry increases its offshore installations, designs bigger, high-capacity wind turbines and expands in new, emerging markets. All this means new demands on you and your installations.





We know the challenges

Reliable operation and minimal need for maintenance are prerequisites for profitability. Wind turbines have to deal with continuously changing weather conditions, heavy loads and vibrations, which can be causes for premature machinery failures and high repair costs.

It's not only the size and weight of turbine equipment that makes maintenance and repair operations difficult to perform, weather, location and accessibility often complicate these actions. The already high costs for maintenance and repair are often increased by loss of productivity.

Lubrication is also a potential challenge. Lubricants need to cover a large temperature range. Manual lubrication means high costs, also for disposal.

Sustainable solutions

Wind energy is indeed an environmentally friendly source of energy. To SKF, supplying the wind energy industry with our solutions, services and knowledge is satisfying in itself and in line with our environmental and sustainability ambitions.

One of our main objectives is reducing friction to make machinery run more efficiently. SKF knowledge enables design engineers to create a new generation of high efficiency machinery that will further reduce the negative environmental impact.

The SKF bearings and sealing solutions for wind turbines – gearbox, generator, main shaft, yaw and rotor arrangements – are based on a common quality concept for optimal interaction. For you, this means reliable operation and long service life.

With highly efficient systems for lubrication as well as the appropriate lubricants we can help you increase reliability and minimize your lubrication costs as well as environmental impact.

Integrated on-line condition monitoring as well as remote monitoring services enable early diagnosis of potential failures. This can improve operational efficiency and reduce planned and unplanned downtime. This becomes increasingly important for turbines in remote locations such as offshore wind farms.

Consultancy and reliability services optimize overall turbine effectiveness, reducing downtime, maintenance and life cycle costs.

By developing tailored solutions to suit your needs, we are able to help you optimize the performance and increase the profitability of your operation.

SKF solutions and services inside a wind turbine increase reliability and efficiency.



Designing competitive power

As original equipment manufacturer, you have a strong influence on your customers' competitiveness. By increasing the performance of your products, you enhance your customers' possibilities of profitable operation.

Your customers rely on your competence and quality standards. They depend on your company's ability to respond to their changing needs and they trust your products to be state-of-the-art. On top of this, you must face the efforts of your competitors.

Who do you turn to for support?

SKF can help

With our life cycle support we can work with you through all the phases of your products – from design and specification to virtual and field testing and maintenance routines and, finally, audits and continuous service. This process can increase turbine efficiency and it can be both quicker and more cost-effective than traditional development processes.

For 100 years, we have worked in close cooperation with engineering companies all over the world – meeting their needs, designing tailored solutions and developing new, more efficient solutions.

A virtual test rig

To further enhance the performance of your equipment, SKF enables your design engineers to utilize advanced simulation software. This way, it is possible to optimize equipment design while it is still in a prototype stage. This virtual test rig enables you to rate various design options under a variety of conditions before manufacturing a prototype and starting field tests.

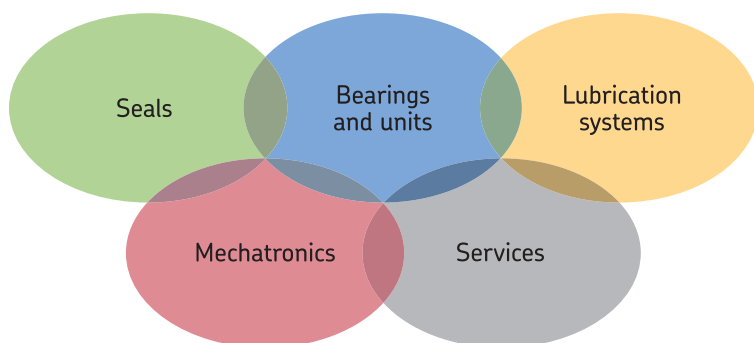
This well-tried method will help reduce total costs and machine development time, increase flexibility, shorten delivery times, improve reliability and can reduce the need for maintenance. And, most importantly, it can increase your and your customers' competitiveness.



*See inserts for more details
about SKF solutions for the wind
energy industry.*

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Drawing on five areas of competence and application-specific expertise amassed over 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and units; seals, lubrication systems, mechatronics (combining mechanical and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management services. A global presence provides SKF customers uniform quality standards and universal product availability.

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