

# Reinforced all-rubber radial shaft seals for wind turbine drive trains

## Benefits

The reinforced all-rubber HSS seals can help to:

- Increase turbine reliability
- Reduce turbine weight
- Reduce turbine maintenance demands
- Extend bearing service life
- Simplify maintenance procedures
- Reduce downtime and lost productivity

## Typical applications

- Large size bearings in wind turbine drive trains

## Reliable, cost-effective protection for large size bearings

The operational challenges for wind turbines cannot be overestimated. Continuously changing weather conditions, heavy loads, remote locations and limited accessibility are just a few.

### Improved stability, easy installation

SKF has developed the new HSS range of reinforced all-rubber seals to meet these challenging conditions. The seals offer an excellent combination of high-performance and reliability as well as easy installation and uptower replacement during planned maintenance procedures. With their limited space requirements, these seals also enable smaller and lighter bearing housings.

The new reinforced all-rubber seals combine high stability with the benefit of an all-rubber seal providing high static sealing performance by its ability to accommodate imperfections in the housing bore surface.

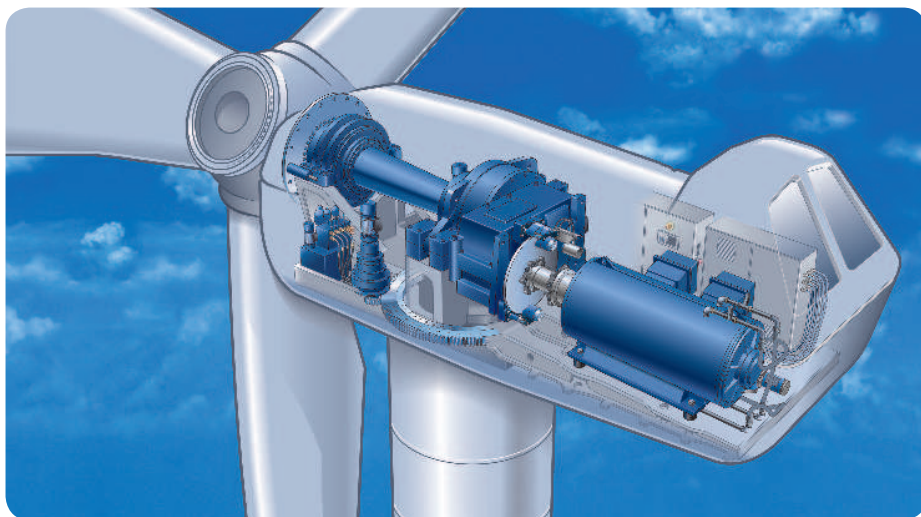
### SKF Duratemp to extend service life

HSS seals are made of SKF Duratemp, a hydrogenated nitrile rubber developed by SKF and successfully used in demanding applications for decades thanks to its excellent ozone, wear and ageing resistance. The standard grade is used for the sealing lip, while the seal body contacting the housing bore is made from a harder grade to provide improved stability in operation and during installation. This concept of reinforcing the seal also allows split designs, which significantly facilitates uptower installations and replacements.

### Proven sealing lip design

The HSS seals feature a well-proven, spring-loaded sealing lip design with a defined radial load for reliable sealing performance. Available in solid and split versions, the seals can include an optional SKF Springcover that reliably keeps the spring in correct position.

HSS seals are manufactured slightly oversized relative to the housing bore diameter and depth and clamped in the housing bore by a cover plate to further enhance the stability and performance.



*The new reinforced all-rubber HSS seal range has been developed for large size bearing protection in wind turbine drive trains.*

For more information about SKF products and solutions for the wind energy industry, visit [www.skf.com/wind](http://www.skf.com/wind), or contact your SKF representative.



## Cut costs with SKF

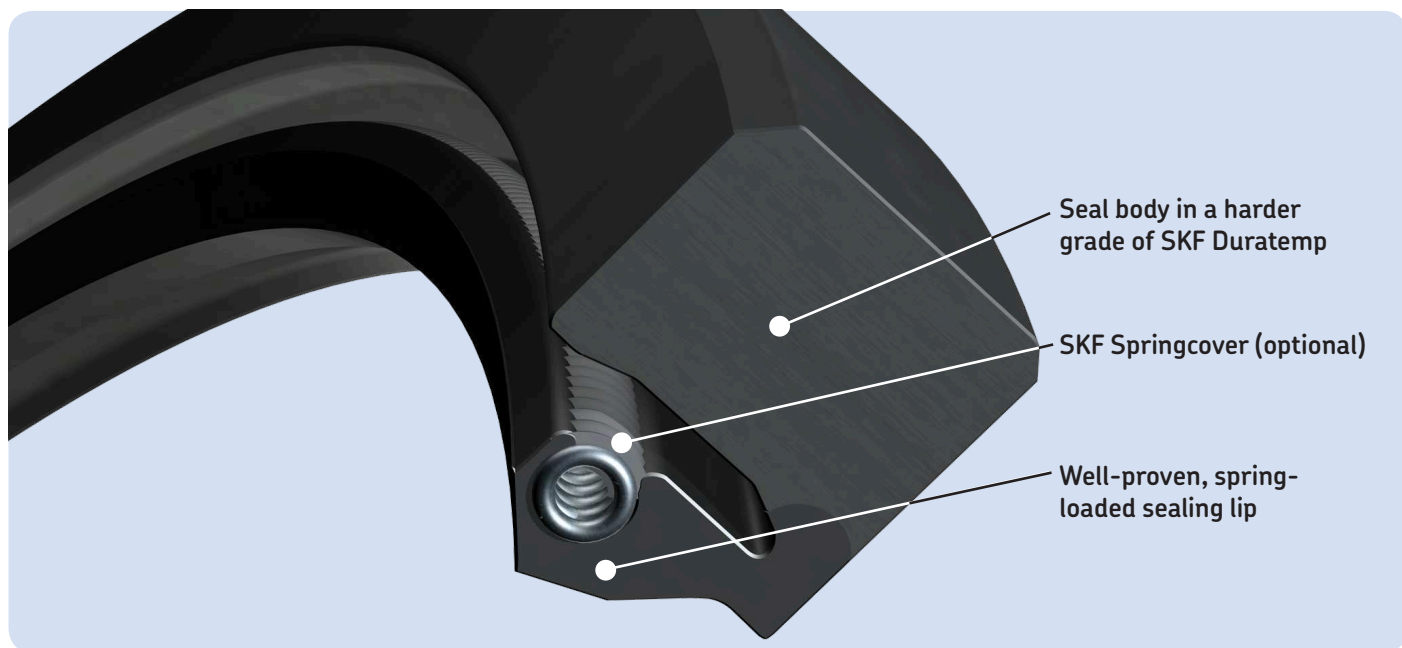
As a major supplier to the wind industry, SKF can help drive costs lower through flexibility in size and design options, and be a single source for bearing and sealing system solutions adjusted to application demands. Specially developed to protect large size bearings, the HSS seals are characterized by high sealing performance and stability, limited space requirements and long service life, providing increased reliability while reducing maintenance costs and turbine weight.

### Flexible manufacturing process

SKF's flexible manufacturing process for the HSS range enables the customization of sizes without minimum quantity and virtually without upper limits for both metric and inch sizes. This flexibility helps to cut costs and enables the same short delivery times for customized dimensions as for standard seals.

### Single-source expertise and value

SKF can offer turbine manufacturers and end users a single source for bearings, seals and lubricants, helping to simplify component sourcing and reduce associated time and costs. To help optimize the performance of these components in wind turbine designs, SKF can support customers with a wide range of engineering consultancy services.



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