



Are harsh operating conditions setting your equipment up for failure?

Benefits

- Increase equipment service life
- Boost productivity
- Increase reliability
- Increase availability
- Cut operating and maintenance costs
- Reduce total cost of ownership

Typical applications

- Sub-sea pumps
- Sub-sea drives
- Multiphase pumps
- Process gas compressors
- Canned drives

Protect your assets and your bottom line with specialized bearing solutions from SKF

Extreme heat. High pressure. Corrosive fluids and freezing temperatures. While you can't change these extreme operating conditions, you can change the way you defend your equipment against them. SKF offers a range of bearings with specialized designs, materials and components to protect your critical assets from the bearing-related failures and unplanned downtime that harsh operating conditions can cause.

SKF specialized bearing solutions can help increase the mean time between failures (MTBF) of pumps, motors, fans and more, extending equipment service life and reducing your total cost of ownership. Here are just a few examples where SKF developed and applied the latest technology to help maximize the life of the machine.

SKF ceramic rolling elements

Manufactured from bearing-grade silicon nitride ceramic, SKF ceramic rolling elements are used with steel rings to produce hybrid bearings. Ceramic rolling elements offer high resistance to electric erosion from variable frequency drives, while also providing high surface fatigue resistance under poor lubrication conditions.

These ceramic rolling elements also offer superior hardness, corrosion resistance, and low density/thermal expansion properties, enabling greater vibration resistance as well as high-speed bearing designs.



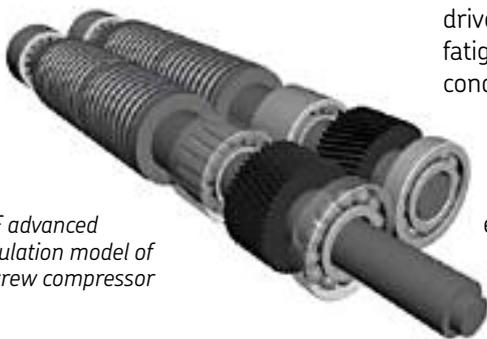
SKF super-tough stainless steel

Used in both rings and rollers for highly demanding oil and gas applications, SKF super-tough stainless steel features high amounts of nitrogen. This "martensitic" stainless steel has a much finer microstructure than conventional bearing steels and combines enhanced fatigue resistance with good corrosion protection.

NoWear bearings

Designed to overcome several common causes of failures – light loads, high speeds, high vibration levels and inadequate lubrication – NoWear bearings feature rolling elements coated with a low-friction, high-hardness ceramic material often applied to larger cylindrical roller and spherical roller bearings.

SKF advanced simulation model of a screw compressor





Save time and money with world-class SKF solutions and services

The whole idea behind the SKF 360° Solution is to help you get more out of your machinery and equipment investments. This may mean lowering your maintenance costs, raising your productivity, or both! Here is an example of the SKF 360° Solution at work in the oil and gas industry.

SKF bearings enable continuous, maintenance-free pump operation at a depth of 1 600 meters

The challenge

An offshore oil and gas processor that required a full processing installation on the seabed first needed to prove that sub-sea pumping of multiphase fluids – oil, gas, brine, sand and more – would be possible in deepwater. After careful selection, the company settled on a pump design that would be tested in waters below 1 600 meters.

To reduce extraction and repair costs along with productivity losses, pump reliability was key. The short-term goal was to operate the equipment maintenance-free for five years or more, even under severe load, shaft deflection and lubricant conditions.

The SKF solution

Working closely with the customer and the pump manufacturer, SKF provided several sets of specially designed CARB toroidal roller bearings. SKF super-tough stainless steel bearing rings with NoWear coated rollers were developed to handle the radial loads, while other specially designed bearings were delivered for the drives.

The results

After long-term field testing, the specially designed SKF bearing solution is showing no signs of wear. The customer is confident that this aspect of the deepwater pump design will continue to withstand the highly demanding conditions of this sub-sea installation.

Specialized SKF bearings can help extend the service life of equipment operating on the seabed floor.



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