



Sealing solutions for the Oil & Gas industry

Seals and engineered plastic parts



The Power of Knowledge Engineering

Out there, reliable sealing solutions
are a must



SKF seals capabilities

SKF is a supplier of top quality, highly reliable products to the Oil & Gas industry. In this most challenging industry our customers benefit from our comprehensive field experience and extensive knowledge in the sealing technology.

Oilfield compatible sealing materials

For polymeric seals, the Oil & Gas industry provides the most hostile environment. SKF's state-of-the-art R&D resources include material testing laboratories and highly qualified material scientists for the development of oilfield compatible materials



for sealing solutions and advanced engineered plastic parts (AEPP).

For Oil & Gas applications, the following material groups are suitable and SKF offers many different standard and customized grades:

- nitrile rubbers (NBR, HNBR)
- fluoro rubbers (FKM, FFKM)
- thermoplastic polyurethanes (TPU, CPU)
- polytetrafluoroethylene (PTFE) and its compounds
- polyetheretherketone (PEEK)
- polyphenylenesulfide (PPS)
- polyamide (PA)



- polyacetal (POM)
- polyimide (PI)
- polysulphone (PSU)
- polybenzimidazole (PBI)

Material and seal production

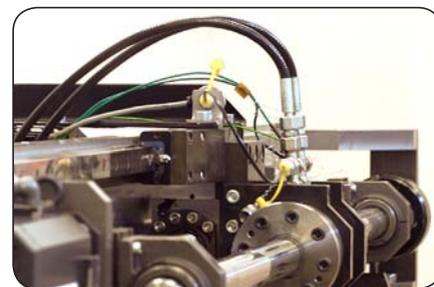
SKF operates a wide range of production equipment:

- polymerization plants
- casting equipment for semifinished material
- thermoplastic injection moulding machines
- thermoset injection moulding machines
- thermoset compression moulding machines
- PTFE billet moulding equipment
- machining centres for polymeric materials (seals and AEPP)
- in-house tool shops



Test resources

SKF laboratories operate a wide range of seals test rigs for linear and rotary applications and a comprehensive range of high-



end material testing equipment including explosive decompression and sour gas immersion testing.

In addition to these internal resources, SKF works in close cooperation with several universities.

Application engineering

SKF's business concept provides a truly local service with expert application engineers positioned in major Oil & Gas regions. After a detailed on-site analysis of the operational requirements, our engineers use the extensive application database and their industry related seals application knowledge to design optimized sealing solutions.

Applications and solutions

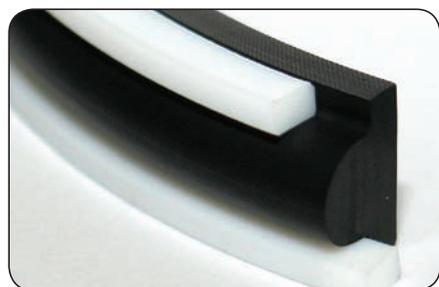
SKF offers a large variety of sealing solutions to meet the challenging demands of the Oil & Gas industry.

Whether the application is in subsea, ultra deepwater, downhole, on- or offshore, mid-stream or downstream equipment, SKF cooperates with customers, providing standard or customized solutions to maximize equipment efficiency and dramatically reduce downtime.

Just to name a few applications, you can find SKF sealing solutions in the following equipment:

Downhole equipment

One of the most severe conditions a seal needs to withstand when drilling for hydrocarbons is found downhole. It is not only the combination of high temperature and high pressure, but also the sometimes unforeseeable mixture of aggressive wellbore

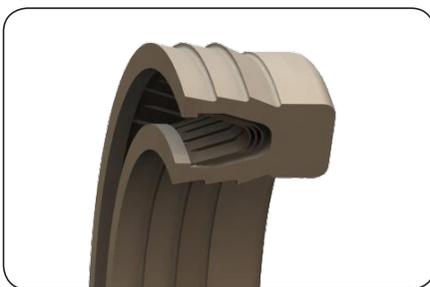


fluids and special installation conditions, that must be considered when designing the sealing solution. These solutions include e.g. special T-seals, packers and Poly-O seals.



Pumps and actuators

For pumps, compressors and actuators operating under severe conditions, reliability, long service life and minimized friction



are a must. SKF provides a variety of rotary seals, piston seals, wipers, guide rings and customized solutions fulfilling these requirements.



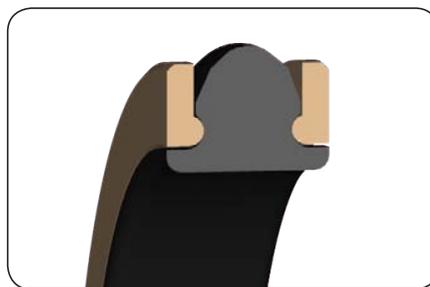
Subsea connectors

Hydraulic or electrical connections are only as good as their sealing solutions. For subsea equipment, only the most advanced and



reliable materials and seal designs can be used.

Because of the difficult installation conditions of subsea equipment, it is sometimes



necessary to use specially designed sealing solutions to avoid damage during installation. Under such conditions, SKF's robust T-seals can help overcome these problems and offer a reliable solution.

Valves and manifolds

For a wide range of valves, such as gate valves, BOPs, wing valves, chokes or other flow control or safety valves, highest reliability and total compliance with environmental and safety regulations is required. SKF provides a wide range of flange seals, stem seals and seat seals to meet these requirements.

SKF also offers special dynamic sealing elements for rotary manifolds, minimizing friction and improving extrusion resistance to extend service life.



SKF is your source for seals, too

While SKF maintains its leadership as the hallmark of quality bearings, new dimensions in technical advances, product support and services have enabled SKF to evolve into a truly solutions-oriented supplier, creating greater value for our customers.

As the only major bearing company with sealmaking capabilities, SKF is able to support your design team with unique competence and a wide range of both off-the-shelf seals and customized sealing solutions.

Typical oilfield media, like drilling and completion fluids, acids, sour gas, corrosion inhibitors as well as general operating conditions like temperature, pressure and speed greatly impact the lifecycle and performance of seals. The selection of material and design can therefore mean the difference between poor, adequate or exceptional product performance.

Whether you want to improve an existing design or create a new solution, SKF can help you analyse your application require-

ments and select the optimum sealing solution to meet the challenging conditions of the Oil & Gas industry.

SKF offers both standard and custom engineered sealing solutions made of a variety of oilfield compatible seal materials. We can work with you to evaluate sealing performance under a variety of conditions on your test rigs or on our own testing equipment including 3-D modelling and simulation software.

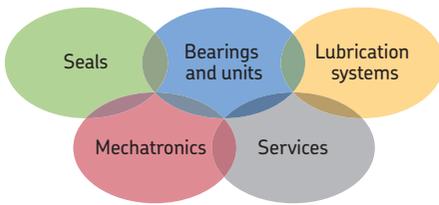
Whether your application is part of upstream exploration, drilling and production, subsea or floating production, or midstream and downstream, SKF can help you design and build your equipment to:

- improve safety at work
- increase productivity
- increase process reliability
- increase environmental sustainability
- increase service life
- reduce maintenance and downtime costs
- meet increasing regulatory demands
- gain media and energy savings

The SKF brand still stands for the very best in rolling bearings, but it now stands for much more.

SKF – the knowledge engineering company





The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 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 mechanics 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 systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

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