

SKF bearings ensure solid performance for offshore vessel

Engineering expertise from SKF has helped to streamline the performance of offshore pipe-laying equipment, while cutting maintenance costs and boosting efficiency.

SKF bearings with Solid Oil have helped an offshore engineering company to cut the cost of maintenance on specialist pipe-laying equipment.

As well as improving safety and cleanliness – through the lack of liquid lubricant – the use of Solid Oil helped to boost operating efficiency, which is of critical importance to the UK oil and gas industry.

The solution devised by SKF was used on a pipe tensioner that sits on the deck of a pipe-laying ship. The machine helps to control tension in pipes as they are being laid on the seabed, even in rough conditions.

Lubricating pipe tensioners correctly will boost operating efficiency in two ways. Firstly, lubrication is the most time-consuming and labour-intensive maintenance task on this type of machinery – so by 'automating' the task, Solid Oil helps maintain optimum efficiency with minimal intervention. Secondly – and more critically – improper lubrication is the main cause of failure for tensioners. Solid Oil therefore helps to prevent costly and dangerous catastrophic failures.

In total, the tensioner uses nearly 500 spherical roller bearings, on support rollers and idler applications.

"These were originally grease lubricated, but the cost of maintaining them was very high," says Gavin Coull, Key Account Manager – Marine & Offshore at SKF. "SKF bearings with Solid Oil were specified to eliminate re-greasing costs."



Efficiency gains

The efficiency of the UK oil and gas sector is falling. It has dropped from around 80% in 2005 to less than 65% today. The dip is caused by a number of factors, but the two largest are unplanned plant shutdowns and planned annual shutdowns.

In 2014, the UK Oil & Gas Authority formulated a strategy to overcome these factors, in an attempt to boost efficiency. It suggested a number of measures to do this, including: cutting the amount of physical maintenance needed – such as by introducing remote diagnostics; reviewing lubrication procedures and practices; and cutting the number of planned maintenance intervals.

SKF bearings with Solid Oil proved to be an effective way of delivering some of these gains. They remove the need for manual re-lubrication, for instance, which frees up technicians to perform other tasks. At the same time, this type of pipe-laying operation can typically take from a few days to many weeks. A requirement to interrupt production in order to re-lubricate or replace a bearing could have a serious impact on productivity. Daily rates for these vessels can be anything from £150,000 to £300,000 per day. Solid Oil helps to avoid this costly break in production.

A lack of liquid lubricant also has environmental benefits. As well as removing the need to store waste grease on board, it leads to a less contaminated work area – and cuts the risk of grease getting in to the pipeline as it is being laid on the seabed.

Solid performance

Solid Oil uses a polymer matrix to contain the lubricant, which ensures that it cannot spill or leak. This then fills the whole internal space in the bearing, and encapsulates the cage and rolling elements. As it rotates, the polymer provides highly effective lubrication for the rolling elements and raceways.

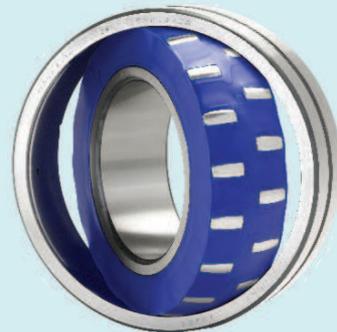
Solid Oil is also a more efficient lubricant than grease – comprising up to 75% oil, where grease has only around 30%.

The original bearings were highly vulnerable to corrosion, through the ingress of salt-water spray. Because Solid Oil fills the bearings, it provides an effective barrier against dirt and fluid ingress. In addition, SKF radial shaft seals provide external sealing.

The customer bought 140 of SKF's 2221E/W64 bearings, and 18 of its 21312E/W64 bearings for the application as a trial, with a view to eventually replacing all bearings with Solid Oil types. Because no lubricant is lost over time with Solid Oil, there is no need for re-lubrication – meaning that bearings are effectively lubricated for life.

SKF's role stretched beyond simply providing the bearings. It also helped the customer to identify the problem and suggest a solution – which led to substantial cost savings.

SKF bearings with Solid Oil



Customer benefits

- Supplies more oil to the bearing than grease
- Keeps contaminants out of the bearing cavity
- Eliminates the need for relubrication
- Eliminates the need for seals to retain the lubricant
- Resistant to chemicals
- Can withstand high g-forces
- Environmentally friendly

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