

Schaeffler Global Technology Solutions

Marine vehicles

Greater Production Reliability on Oil Platforms

The customer is an international operating manufacturer of ship propulsions and maritime solutions. Beside his deep product know how the customer offers a global service network. This ensures his customers a professional aftersales service – from installation, up to maintenance and repair.

Challenge for Schaeffler

Bearing damage and gear failures in the propulsion of an oil platform are extreme costly as oil production may have to be stopped completely for the repair work. For this reason it was of great importance for the customer to increase the operational reliability of these crucial elements and to get always detailed information about the condition of the thrusters. Only this knowledge makes it possible to detect damage at an early stage, preventing serious failures and enormous costs. Therefore, the bearing vibrations inside the thruster should be monitored permanently in future with the help of an online monitoring system. Also, the thruster overhaul intervals required by insurance companies were to be extended from currently five years to up to ten years with the help of the condition reports provided by the system.

Schaeffler Solution

A thruster is a closed system which is filled completely with hot oil (up to 80°C). If a sensor fails in operation, it cannot be replaced without dismantling the whole thruster. So the vibration experts of Schaeffler decided to provide an additional sensor at each bearing location as well as special seals for the sensors and sensor cables. As the thrusters can rotate 360 degrees, signals must be transmitted from the thruster via a slip ring. The recorded data are analysed by experienced Schaeffler vibration experts via remote access. In addition, the customer's personnel were trained in the use of the system in various training seminars.



Technical Information about the Thrusters

Drive power: 5,5 MW



Online monitoring system FAG DTECT X1



Oil platform



Service experts at Online Monitoring Center

Customer Benefit

Thanks to the permanent monitoring of the thrusters, emerging damage can be detected at an early stage. This allows to prevent any unscheduled shutdowns. Avoiding a total loss can save the company up to 10 million euros:

Possible savings in the current case:	
Cost of a thruster:	€ 2,5 M
Thruster installation (including shipyard cost etc.):	€ 2,0 M
Production losses (14 days x € 400 000 per day):	€ 5,6 M
Cost savings:	approx. € 10 M

The hardware of one online monitoring system per thruster costs about 37 000 euros. The customer uses the possibility of extended overhaul intervals as an additional sales argument, which gives the company a competitive edge.

What's special

Due to the extremely harsh ambient conditions in which the sensor system and the monitoring system are used, the Schaeffler vibration experts have developed an especially demanding solution. Its conception allows an easy applying to other ship propulsions around the world. Only the slip ring is always a custom-made item that must be adapted to a customer's specific propulsion.

Technical Information about the Solution

Monitoring system:

FAG DTECT X1

Sensors:

10 sensors, sealed with cast resin

Sensor cables:

Protected by Viton seals

Communications:

TCP/IP (on the rig), satellite communication to Schaeffler Online Monitoring Center

Slip ring:

10 bands, adapted to the prevailing conditions

Additional signals:

Speed, motor current and the thruster's angular position